

CONNECTING
TOMORROW'S
WARRIORS

2014 ANNUAL REPORT TO THE STAKEHOLDERS



PROGRAM EXECUTIVE OFFICE COMMAND CONTROL COMMUNICATIONS-TACTICAL



MISSION

To rapidly develop, field and support fully networked capability sets.

VISION

Connecting tomorrow's warriors

OUR FOCUS

Support the Globally Responsive Soldier

- Develop, field and support networked mission command solutions to meet evolving operational requirements for an agile, expeditionary force
- We are on call 24/7 to provide support around the globe

Simplify the Network

- Deliver intuitive capabilities to the Soldier requiring minimal training and field support
- Optimize the network so Soldiers have the information they need anytime, anywhere and on any device

Seamless Connectivity of Today and Tomorrow

- Deliver a seamless and secure operational network capability that enables the Force 2025 information sharing environment across the tactical battlefield
- Provide scalable, adaptive solutions that quickly adjust based on mission, region and other factors, while maintaining overmatch over adversaries

Empowering the PEO C3T Team

- Shape the organization to meet the demands of the future by recruiting, training and developing a premier workforce
- Cultivate the professional skills and collaborative environment necessary for success

Forging a Culture of Efficiency

- Drive value to the Soldier and the taxpayer by identifying and executing opportunities for efficiency
- Collaborate across stakeholder communities for agile capability development and delivery

LETTER TO THE STAKEHOLDERS



Driving through the mountains and valleys of Afghanistan, Soldiers watched live video feeds from Unmanned Aerial Vehicles, tracking the bird's-eye view of their surroundings and executing calls for fire.

Commanders on patrol for days and weeks stayed plugged in through mobile mission command applications, while others turned their networked vehicles into mobile "hotspots" at remote forward operating bases and even Afghan election sites.

On foot, security and advisory teams ventured to dangerous locations with a history of attacks against coalition forces, carrying lightweight data radios and handheld devices that assured leaders of their troops' safety.

It's a long way from the drive to Baghdad in 2003 – when operations were moving too fast for antiquated communications equipment to keep up – and even from 2008, after the Army had surged capabilities to answer urgent operational needs but still lacked integrated network connectivity down to the lowest echelons of the force.

In 2014, dismounted squads and platoons navigated with smartphones connected to networking radios, while battalion and brigade commanders once dependent on fixed command posts to view the latest force movements and situation updates are now accessing the same data from inside their vehicles, covering more territory with fewer personnel. A global network of satellite communications provides high-speed, high-capacity connectivity with terminals ranging from the size of a small house to the size of a suitcase. PEO C3T systems are supporting U.S. forces from Kentucky to Korea to Kuwait, with Soldiers referring to our technologies as a "game changer" and their "digital

guardian angel."

But those same Soldiers tell us that we still have work to do. Even for the many digital natives in our ranks, who have never known a world without internet, the Army's tactical network is not intuitive to use. Systems require too many commands, entered through too many menus. Configuration changes often cannot be made automatically, requiring significant field support.

As network and cyber capabilities become more central to commanders' mission planning and execution, it is clear that the systems we deliver must provide the same seamless, naturally collaborative experience as the devices Soldiers use in their everyday lives. To achieve this goal and enable a versatile and expeditionary Force 2025, PEO C3T has developed a tactical network modernization roadmap that will enable the Army to fill known capability gaps and make the fundamental improvements to network functionality that will ensure the American Soldier remains the most discriminately lethal force on the battlefield.


You will read more about the roadmap in the following pages, as well as how we are coordinating with government and industry partners to put the processes in place to make the future tactical network a reality. Speaking of partnerships, Fiscal Year 2014 was also a chance to strengthen our ties with places like Tobyhanna Army Depot, a breeding ground for efficiencies that offers value and innovation far beyond traditional maintenance work. We joined forces with our C4ISR teammates such as the Communications-Electronics Command and Communications-Electronics Research, Development and Engineering Center to develop smart sustainment strategies and synchronize

research and development goals. In collaboration with PEO Ground Combat Systems, we forged a path to modernize the network for Stryker and Armored formations.

We also looked inward, making several organizational changes so our PEO staff and Project Managers are positioned to support Force 2025 and Beyond objectives. We notched significant progress in realigning field support to return the expertise to the Soldier, and leveraged lessons-learned to execute an orderly and timely withdrawal of personnel and equipment from Afghanistan.

FY14 was, in part, a year of preparing the battlefield – from creating the roadmap, to standing up a competitive radio marketplace, to making major usability improvements to Warfighter Information Network-Tactical (WIN-T) Increment 2. Looking ahead to FY15, PEO C3T will continue to provide tactical network and mission command solutions for Operation Resolute Support and contingency operations worldwide, while fielding incremental upgrades to both Capability Set (CS) and non-CS units. We will execute key tests and integration activities to provide a converged and enhanced tactical network baseline for the Army to build on.

Most importantly, we will pursue our vision knowing the power that information can bring to our Soldiers, and the risks they face without it. They are counting on us to keep pushing forward, and we are grateful for your support.


Daniel P. Hughes
Major General, USA
PEO C3T

SOLDIER FEEDBACK SHAPES PLAN FOR 2025 NETWORK



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These are difficult times in the defense budget, and the Army is having to prioritize everything, but modernization of the network is among the very highest priorities.

Undersecretary of the Army Brad R. Carson

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Capitalizing on feedback from Soldiers who took Capability Set 13 to Afghanistan and direction from senior leaders on advancing the network to support the next fight, PEO C3T has developed a modernization roadmap that pushes toward an intuitive, dynamic and robust tactical network for Force 2025.

With some of the improvements already underway, the roadmap includes three phases that act as building blocks: Network 2.0 (Fiscal Years 2014-16), Simplified Tactical Army Reliable Network (STARNet, FY16-20), and the Network After Next (NAN, 2020 and beyond). The plan centers on making the network more versatile to support an agile, expeditionary force, as well as making communications systems easier for Soldiers to operate with less training and field support.

“The Chief of Staff of the Army has made it very clear that the network is a key enabler to getting the Army where it needs to go, which is essentially an agile,

versatile force that has the ability to adjust based on mission, based on region, based on lots of different factors,” said Maj. Gen. Daniel P. Hughes, PEO C3T. “We’re looking to develop adaptive solutions that can meet these challenges, and to replace the complexity of the current network with complete simplicity.”

The Current Network in Theater

Over the past two years, the Army fielded four of the final brigade combat teams (BCTs) bound for Afghanistan with Capability Set (CS) 13, an integrated network package that brought dramatic changes from previous communications equipment. CS 13 introduced mobile satellite and terrestrial communications that connect all echelons of the BCT with voice and data, allowing commanders and Soldiers to stay situationally aware at all times, even when far away from the command post. It extends the high-capacity Warfighter Information Network-

Tactical (WIN-T) Increment 2 network “pipe” to the company level, and brings the dismounted Soldier into the network with data radios and smartphone-like Nett Warrior devices that allow troops to send messages, access mission-related applications and track one another’s locations with Global Positioning System technology.

All of those BCTs have since deployed to Afghanistan, operating with fewer Soldiers and in different configurations than a typical BCT, to help execute the U.S. advise-and-assist mission and retrograde operations. While unit leaders say CS 13 has supported them in numerous expected and unexpected ways, they have also provided detailed and constructive feedback to the Army on how to improve the equipment for the future.

“It’s new, and like anything new, it’s going to take some time to work out the bugs and figure out how to make it more efficient,” said Maj. Gary Pickens, former



S6 for the 4th BCT, 10th Mountain Division (Light Infantry), or 4/10, which concluded its deployment in March. “Is it a home run right out of the gate? No, but it’s a great step in the right direction.”

Pickens said his unit gained the most value from two aspects of CS 13: networked Key Leader Vehicles that eased the transition between command post and mounted operations, and greater accountability of dispersed, dismounted troops. The vehicles integrated with WIN-T Increment 2 allowed key leaders to maintain access to mission command information and stay in constant contact with the rest of the brigade.

“On an expeditionary advising mission, you’re going to gather a lot of data points,” Pickens said. “You can call over a radio and dictate that stuff to a person at the other end, or keep notes in a notebook and do it when you get back to the base – so why not type it on the mission itself?”

At lower echelons, the Rifleman Ra-

dios and Android-based Nett Warrior devices that provided digital communications and Position Location Information for dismounted Soldiers served as a force protection measure that helped 4/10 cover more ground with fewer troops.

“We had these security and advisory teams going to pretty dangerous places where there had been a history of attacks against coalition forces,” Pickens said. “Using the end user device, very quickly a leader is able to look at a map with his Soldiers arrayed on that map and understand with confidence what the situation is.”

Challenges and Adaptable Solutions

That new “digital guardian angel” capability provided by the data radios, however, also introduced new complexities. Unlike traditional FM radios, the CS 13 Lower Tactical Internet requires a deliberate pre-planning effort to configure the Soldier Radio Waveform, and is difficult to adjust to account for unit task reorganization (UTR), a common

occurrence in Afghanistan.

Responding to this concern, the Army is now accelerating changes to simplify the network adjustments required to support UTR. For example, the On Demand Information Network (ODIN) app – developed in six months using an Android-based, open architecture – takes a step in the right direction, providing the ability to dynamically reconfigure software defined radios to support mission changes without ever having a Soldier touch a radio. As part of STARNet, the PEO is developing a plug and play architecture that will allow seamless, automatic, over the air network reconfiguration associated with force structure changes through a user-friendly graphical interface and automated execution process.

“The Soldier will do a drag-and-drop on the screen,” said Jennifer Zbozny, chief engineer for PEO C3T. “A lot will be going on beyond the scenes, but from the user perspective, he should just be able to say,

***The network
— along with
cyber capacity
and training the
force — are key
to making the
2025 vision
a reality.***

LTG Robert S. Ferrell,
Army CIO/G-6





[The network] has to be very integrated and resilient. But when it gets to the Soldier, we have to simplify that as much as possible.

LTG Michael Williamson, principal military deputy, ASA(ALT)

"I want to move my company over here."

Another challenge users encountered with CS 13 was more straightforward: much of the network equipment was integrated and delivered on Family of Medium Tactical Vehicles (FMTVs) and Mine Resistant Ambush Protected (MRAP) All Terrain Vehicles (M-ATVs), to meet force protection requirements for the Afghan theater. However, their mission often called for air movement rather than ground transportation, leading units to devise their own innovative ways to get CS 13 where they needed to go.

Similar feedback regarding vehicle platforms was provided by the 101st Airborne Division (Air Assault) and 82nd Airborne Division, whose BCTs have also received CS 13 or the follow-on CS 14.

"We cannot sling an MRAP, and it's a challenge for us because of that," said Capt. Alexander Marotta, former deputy S6 for the 3rd BCT, 101st Airborne. "That being said, it doesn't take away our ability

to use these systems to enhance our mission command. There are a lot of positive things that are coming out that we can still utilize without air assaulting the large pieces of equipment."

The Army has begun to deliver CS 14 equipment on different platforms, including High Mobility Multipurpose Wheeled Vehicles (HMMWVs) and Strykers, to fit unit requirements, and is working to make the equipment more scalable and tailorable.

Simplify, Simplify

The most universal lesson-learned from CS 13 is the need to simplify tactical communications systems so they pass the "smartphone test": easy for Soldiers to operate with minimal training or intervention by civilian field support representatives. Simplicity is the common element that stretches across the different focus areas of the network modernization roadmap, which include

mission command, upper and lower tactical internet transport, cyber, network operations (NetOps) tools, and physical enablers such as power requirements and command post footprint.

Network 2.0, the first phase of the plan, is already underway. It focuses on providing a converged and enhanced network baseline for the PEO to build upon for future Capability Sets, by continuing to transition stand-alone mission command systems into integrated, web-based applications and by simplifying and converging NetOps tools for the S6 and G6. Network 2.0 also delivers critical upgrades for the WIN-T Increment 2 Key Leader Vehicles, including major reductions in startup and shutdown times, a simplified graphical interface and improved troubleshooting tools. The improvements are being tested in fall 2014 in preparation for fielding to CS units.

Those changes will make the vehicles more accessible for the general-purpose



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user and increase their utility on the battlefield, Marotta said.

“We’re going to see the Soldiers want to use it,” he said. “It’s a great new capability and I can’t wait for it to go through some of its growing pains.”

STARNet, the mid-term phase that concludes in 2020 to enable Force 2025, will begin to inject next-generation technologies into the network baseline to deliver a more seamless information-sharing environment, allowing users to connect and collaborate across operational phases, echelons, regions and partners. Using standardized maps, messaging and icons, STARNet will provide a unified, familiar experience across the command post, mounted and dismounted environments – similar to what a user would have with multiple personal devices that all run an Apple, Google or Windows operating system. STARNet will also lighten network systems’ energy burden and leverage wireless technology

for quicker setup and teardown of command posts.

NAN defines the objective tactical network capabilities and leap-ahead technologies to support the Army beyond Force 2025.

NAN will enhance tactical cyber operations, add dynamic spectrum access solutions for greater bandwidth and introduce digital assistants that provide needed information, analyses and recommendations on a complex battlefield.

After defining the detailed technology goals for each phase of the roadmap, PEO C3T is now collaborating with Army staff and major stakeholder commands to continue executing the plan. Emphasis has been placed on requirements mapping, test and evaluation strategy, system of systems integration and

Program Objective Memorandum (POM) resourcing for emerging capability and development efforts. Additionally,

PEO C3T and the Army Science and Technology community have actively reached out to industry and academia through industry forums, market research and technology exchange activities to gather commercial feedback to help inform the art of the possible.

“Our goal and our imperative to support Force 2025 is to provide commanders and Soldiers with the information and connections they need to execute decisive actions anytime, anywhere and on any device,” Hughes said. “The feedback and innovation from CS units has been invaluable as we simplify and shape the network for those who will follow in their footsteps.”

**STARNET FOCUS:
SIMPLIFICATION,
ACHIEVING AND
MAINTAINING OVERMATCH,
AND IMPROVED
EXPEDITIONARY
CAPABILITIES**

My number one priority is the simplicity of the network. We are working toward that every single day.

**MG Daniel P. Hughes,
PEO C3T**

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STRYKER BCTS GET NETWORK UPGRADES



This allows the brigade or battalion commanders to make on-time decisions and move forces more quickly to concentrate combat power. It extends the network far beyond what we could normally do in an EPLRS environment.

MAJ Dan Galvan,
2nd SBCT/2nd
Infantry Division (2/2)
brigade engineer



After providing a “one-two” punch of survivability and tactical mobility to the field in Afghanistan and Iraq, the Army’s combat-proven Stryker vehicle is now getting a high-speed network upgrade.

Previously relying on the line-of-sight, radio-based Enhanced Position Location Reporting System (EPLRS) for communications, select Strykers are now being equipped for the first time with the satellite-based network communications capabilities of Warfighter Network Information-Tactical (WIN-T) Increment 2 and Blue Force Tracking (BFT) 2.

Stryker Brigade Combat Teams (SBCTs) conduct rapid operations across great distances, in all types of terrain and across the spectrum of conflict. These new satellite-based networks outfit the Stryker with advanced communications capabilities, near real-time situational awareness and faster position location information, allowing SBCTs to send and receive the data they need on the move from geographically separated locations.

The two capabilities complement one another across a brigade combat team

(BCT) with WIN-T Increment 2 providing the on-the-move communications network backbone down to the company level to support mission command and advanced communications capabilities and the BFT2 network. This enables situational awareness of friendly forces and digital command and control down to the platoon and squad levels. Even though some echelons may not be connected to the WIN-T network, having both capabilities enables the entire BCT to stay connected and operationally informed.

WIN-T Increment 2 allows deployed Soldiers operating in remote and challenging terrain to maintain voice, video and data communications while on patrol, with connectivity rivaling that found in a stationary command post. From inside their WIN-T Increment 2-equipped vehicles, Soldiers and commanders can provide and receive real-time situational awareness information across the BCT utilizing on-board mission command systems, Voice over Internet Protocol phone calls, full feature chat and other collaborative enterprise capabilities. A Stryker battalion integrated with WIN-T

Increment 2 will participate in the Network Integration Evaluation 15.1 this fall to inform future SBCT fielding decisions.

The Stryker network upgrades also include equipping vehicles with BFT 2. The BFT 2 network is used with the Army’s current and future situational awareness and friendly force tracking capability Force XXI Battle Command Brigade-and-Below (FBCB2), which is upgrading in two steps – Joint Capabilities Release (JCR) and Joint Battle Command-Platform (JBC-P). The BFT 2 conversion began in March with the 2nd SBCT/2nd Infantry Division (2/2) and 3rd SBCT/2nd Infantry Division (3/2). This fielding is part of the Army’s larger Capability Set fielding effort that includes an integrated communications package previously only available to Infantry BCTs.

There are five remaining SBCTs to upgrade by the end of fiscal year 2015 or early fiscal year 2016. The Army will continue fielding the BFT 2 network to all Stryker units. Then, starting in late fiscal year 2015 the Army will begin upgrading four EPLRS based Armored Brigade Combat Teams with JCR/BFT 2.

WI-FI, 4G LTE HIT THE BATTLEFIELD



The Army is introducing the power of 4G to the battlefield, providing coverage that stretches across a forward operating base so Soldiers can access mission information from their smartphones, not their desks.

The 4G LTE infrastructure is part of a new collection of advanced commercial technologies, including coalition and first responder capabilities and Wi-Fi for command posts, which answer Soldiers' demands for tactical network systems by delivering increased bandwidth and enhanced capabilities in smaller packages.

"These new network technologies will increase our readiness and agility," said Lt. Col. Keith Dawson, commander of the 86th Expeditionary Signal Battalion (ESB). "They will enable us to deploy in smaller teams instead of deploying as an entire battalion like we did in the past."

PEO C3T fielded the Tactical Network Transmissions (TNT) equipment package for the first time to the 86th ESB to support the Network Integration Evaluation

(NIE) 14.2 at Fort Bliss, Texas. The Army is providing the new 4G LTE/WiFi equipment collection to significantly increase network capability and throughput while reducing size, weight and power to help ESBs become more versatile and rapidly deployable. Some of the TNT equipment is also scheduled to be fielded to National Guard units for improved communications during civil support events such as natural disasters.

"Commanders can just pick up their cell phones and directly call or text anyone they need to within the radius; it's a much faster line of communication," said Corp. Michael Bullis, B company, 86th ESB, who operated the 4G LTE/WiFi equipment at NIE 14.2. "On the software end, Soldiers have a centralized knowledge base on their phones, and the Army will continue to add apps to provide a more realistic view of what is going on in operations."

The diverse TNT technologies also in-

clude the Tropo Lite terminal, nicknamed "Tropo in a can" by Soldiers because of its transit-cased deployability. Tropo Lite bounces microwaves off the atmosphere for high-speed transfer of large volumes of data between sites and over mountains – providing an alternative to expensive satellite communications. Additionally, the package includes a smaller, more transportable line-of-sight radio system called "TRILOS" that increases throughput 12 times over legacy radios.

"Having more throughput means faster and more reliable services, and in wartime it is critical for a commander to send his message quickly," said Capt. Levelle Moore, B Company Commander for the 86th ESB.

New suitcase-sized satellite equipment will extend the Army's tactical communications network backbone, Warfighter Information Network-Tactical (WIN-T), to the tip of the spear, while providing up to 16 times the throughput of currently fielded capability. The Transportable Tactical Command Communications (T2C2) program will provide satellite dishes that deploy in transit cases the size of carry-on luggage to support small detachments and teams, plus larger transportable satellite dishes that can be carried in the back of a truck to support company-sized elements. This advanced technology will enable Soldiers to connect to the WIN-T network even in remote locations void of network infrastructure.

PEO
C3T WILL
DEMONSTRATE A
BATTALION COMMAND
POST WIRELESS
SOLUTION AT NIE
15.2.

MAJOR IMPROVEMENTS FOR MOBILE NETWORK



Covering over 1,250 miles a day in scorching desert heat, Soldiers this summer successfully completed the second of two rigorous developmental tests to evaluate improvements to the Army's high capacity, mobile tactical communications network backbone, Warfighter Information Network-Tactical (WIN-T) Increment 2.

"I deployed to Afghanistan for nine months with the system and I see definite changes," said Staff Sgt. Brandon Miller, who supports network operations for the 4th Brigade Combat Team (BCT), 10th Mountain Division (Light Infantry). "It is a lot more user-friendly and intuitive, and it is lot easier for the average user to interface with this system."

Soldier feedback from theater, Network Integration Evaluations (NIEs) and user juries helped the Army make WIN-T Increment 2 easier to operate and maintain. Among the many system enhancements are drastically reduced startup and shutdown times; a new, easy to use graphical interface; improved and simplified troubleshooting tools and faster, easier calls to extend radio networks.

The WIN-T Increment 2 enhancements, designed to improve system reliability, simplicity and usability, have now been assessed during two intensive developmental tests that PEO C3T coordinated with multiple Department of Defense and Army organizations. The first developmental

test was completed at the Aberdeen Test Center at Aberdeen Proving Ground, Md., in late February. The second, more extensive developmental test (DT2) was completed in late June in the deserts and mountains of White Sands Missile Range, N.M., where temperatures often exceeded 110 degrees.

The DT2 laid the foundation for the WIN-T Increment 2 Follow-on Operational Test and Evaluation 2 scheduled to coincide with the Army's NIE 15.1 in October-November 2014. NIE 15.1 will also be the first NIE to utilize new configurations of WIN-T Increment 2 that include network-equipped Stryker vehicles. DT2 provided the opportunity for technical verification of three WIN-T Increment 2 Stryker variants in advance of NIE 15.1.

WIN-T Increment 2 provides enhanced capabilities over the previously fielded at-the-halt WIN-T Increment 1 and its upgrades, including network-equipped vehicles that provide on-the-move communications, situational awareness and mobile network "hotspot" reachback from anywhere on the battlefield. The WIN-T Increment 2 Soldier Network Extension, provides network communication and extension capabilities down to the company level, and the Point of Presence, enables mobile mission command at the battalion level and above.

To help capture data during the DT2, the Army



installed a complete suite of instrumentation on each WIN-T Increment 2 equipped-vehicle that monitored the entire network and the performance of each system, including data throughput, software performance and network availability. Hundreds of gigabytes of data per day were collected and sent back within 48 hours to Aberdeen Proving Ground for analysis. Army Test and Evaluation Command (ATEC) personnel rode in each WIN-T Increment 2 vehicle and noted all operations during mission threads, while the Network Operations and Security Center, which helps to manage the WIN-T Increment 2 network, recorded data from their end. While the instrumentation and various data collection methods monitored the performance on the back end, Soldiers provided continuous feedback on usability performance via daily after action reviews on the front end.

Soldiers from the 82nd Airborne Division, 101st Airborne Division (Air Assault) and 10th Mountain Division supported the WIN-T Increment 2 DT2. While some Soldiers were training on and using the system for the first time, nearly a third of the Soldiers had previously deployed to Afghanistan with the system, enabling them to provide a unique real-world comparison of the new system changes.

"The Army has made great strides to simplify the network and its management," Miller said.

NEW WIN-T INCREMENT 3 SIMPLIFIES NETOPS



The Army's rapid fielding of network systems to support operations in Iraq and Afghanistan led to vastly improved communications capabilities on the battlefield – but also increased network complexity.

The service is now moving to simplify and reduce the number of network management tools its communication officers (S6s) use to manage the tactical communications network, moving from deliveries of stove-piped toolsets across various systems and echelons to an integrated system.

"The S6 has a wide range of network transport devices, applications and hardware that he has to manage, and he has a lot of different program offices providing him with their own Network Operations (NetOps) tools that don't necessarily work together," said Lt. Col. Ward Roberts, product manager for Warfighter Information Network-Tactical (WIN-T) Increment 3, who is leading the Army's Integrated Tactical NetOps team. "But the goal of NetOps convergence is to provide one tool, or an easy to use integration of tools, into one seamless delivery so that

the S6 has one tool set to manage his whole network."

The Army is restructuring the WIN-T Increment 3 program to focus on the enhancement and simplification of NetOps, setting the stage for the Army's network of 2025. Following approval by the Office of the Secretary of Defense to restructure the WIN-T Increment 3 program due to fiscal constraints, the Army is adjusting funding and fielding schedules for WIN-T in accordance with this path forward. PM WIN-T will continue to deliver tactical network improvements under the WIN-T Increment 1 and Increment 2 programs, fielding units that were previously scheduled to receive configuration items under the WIN-T Increment 3 program. The network aerial tier and the Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (JC4ISR) radio planned for WIN-T Increment 3 have been de-scoped from the program baseline, deferring the requirement to a future program.

In addition to the more concentrated

NetOps focus, the WIN-T Increment 3 program will also continue with software upgrades to both the high-speed, beyond-line-of-sight Network Centric Waveform (NCW) and the line-of-sight Highband Networking Waveform (HNW 3.0). Both the NetOps and NCW enhancements will be inserted into units fielded with the at-the-halt WIN-T Increment 1 and mobile WIN-T Increment 2. Following the completion of its development and an over-the-air demonstration, the new HNW waveform will be placed into the Joint Tactical Networking Center managed Department of Defense (DoD) Waveform Information Repository for potential use by other Army and DoD programs.

The latest version of the advanced WIN-T NetOps capabilities was evaluated at Network Integration Evaluation (NIE) 14.2 in May and will be fielded to units equipped with WIN-T Increment 2. The Army's semi-annual NIEs have been a venue to converge NetOps tools: the first NIE event in 2011 included more than 70 separate systems to run and operate the network; that total is now closer to 20.

WIN-T Increment 2- equipped brigades now have four times as many network nodes that units had in the past — as many radio and satellite assets once possessed by a division — making it a challenge to manage that network. But today's improved WIN-T NetOps tools make it much easier to manage that complexity.

**Chief Warrant Officer
Eric Bache, NetOps
manager, 2nd Brigade
Combat Team, 1st
Armored Division**

IN-FLIGHT NETWORKING FOR RAPID RESPONSE FORCES



With help from the Army's new in-flight internet and mission command capability, commanders of Global Response Force (GRF) units will be able to plan missions in the air, while their Soldiers receive operational updates and watch full motion video of upcoming drop zones before their parachutes ever open.

"The ability to understand a situation gives you the ability to take appropriate action, and if the GRF can understand a situation before they get to their drop location, then they can be more effective from the moment boots hit the ground," said Lt. Col. Joel Babbitt, product manager for Warfighter Information Network - Tactical (WIN-T) Increment 1, which manages the new in-flight capability for the Army.

The joint GRF essentially consists of two components -- the Air Force that

supplies and sustains the C-17 and C-130 aircraft and the Army's XVIII Airborne Corps, primarily the 82nd Airborne Division, which has deployment-ready paratroopers and infantrymen who can provide an immediate military capability on the ground in a very short period of time to any hotspot worldwide.

To help meet GRF mission requirements, the Army's new Enroute Mission Command Capability (EMC2) is installed on C-17 aircraft. EMC2 will provide WIN-T network access and mission command capability for GRF units while in flight, enabling the GRF to stay connected to joint, coalition, or strategic forces as they are traveling into a developing situation. The U.S. Special Operations Command (USSOCOM), which oversees the special operations component commands of each service, already has aircraft outfitted with their own version of this in-flight capabil-

ity. The Army's EMC2 system integrated on additional C-17s expands that initial USSOCOM capability, supporting the increased expeditionary nature of today's forces.

The Army began testing of EMC2 installed on the C-17s at multiple locations this summer, and the capability is expected to pass the Air Force's stringent Safe to Fly Requirements by the end of November 2014. On the current timeline, EMC2 fielding and training for the XVIII Airborne Corps is expected to begin in January 2015.

EMC2 provides internet service, mission command applications, full motion video, intelligence products and collaborative planning tools along with a complete office suite of computers and voice phones -- all onboard an airplane. It enables en-route mission command, so that as the situation develops in the destination

**GLOBAL
RESPONSE
FORCE UNITS CAN
PLAN AND MAINTAIN
SITUATIONAL
AWARENESS IN
THE AIR**



target area, commanders will be able to get updates, understand changes on the ground and be able to adjust their plan to accommodate for those changes, Babbitt said. "It will be a transformation in the situational awareness and effectiveness of the GRF in the first several hours of ground operations," he said.

One of the main components of EMC2 is the Fixed Install Satellite Antenna (FISA), which provides the internet connection for the C-17. Similar to the capability being used and implemented by today's commercial airlines, FISA posed a low technical risk for Army adoption.

"The FISA provides a fourfold increase in bandwidth so that a new host of services can be employed on board, increasing capability for GRF units to plan and maintain critical situational awareness in the air," said Capt. Mindy Brown, EMC2 lead for PdM WIN-T Increment 1.

The U.S. military already has satellites, airplanes and drones that provide standard and high definition full motion video. With EMC2, those feeds can now be displayed on board the aircraft on LED screens, along with integrated marquees and an intercom system.

"Being able to see the airfield where you are going to be landing, to see that drop zone, helps Soldiers get their heads fully into the operation so they are better prepared for the mission at hand," Brown said.

The key capability of EMC2 does not just reside in the antenna, but also in the incorporation of the Key leader Enroute Node. It will provide airborne units with broadband reach-back data capability; secure Voice Over Internet Protocol (VoIP) communications between task force commanders and combatant commanders; as well as communication between aircraft.

"For the GRF, EMC2 is an absolutely disruptive technology to the traditional way of doing business and will transform operations," Babbitt said.

Well-equipped, rapidly deployable units such as the GRF are a vital part of the Army's evolving structure as it strives to become an agile, more capable and expeditionary force. Advanced network capabilities such as EMC2 will continue to increase force mobility and versatility by making it easier for Soldiers to get the information they need to be successful anytime, anywhere.

"EMC2 will not only enable the Airborne Task Force commander to better understand developing situations, but it will also increase the situational awareness for all of the joint servicemen and women in the aircraft," Babbitt said. "It really comes down to mental preparation and the ability to plan 'on the fly.'"



ARMY CREATES RADIO MARKETPLACE



We now have a means of communications designed specifically for the squad and the rifleman.

Capt. Alexander Marotta, deputy S6, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault)

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As the Army works to simplify communications tools that Soldiers rely on every day, PEO C3T is driving competition to procure software-defined radios (SDRs) that keep the complexity “inside the box.”

“Today’s Soldiers have grown up with technology that is very advanced, and they expect the radios to connect to the network quickly and be easy to operate,” said Col. James Ross, project manager for Tactical Radios. “The radios must have these features to meet Soldiers’ needs, including simplified menus and interfaces.”

The process of procuring radios has evolved along with the technology itself, and the Army’s new strategy looks to industry to fill a vital role in streamlined radio development and production. Procuring Non-Developmental Item (NDI), or commercially-developed, products rather than investing government development resources opens competition to industry partners, creating a radio marketplace that will encourage vendors to deliver to super-

rior radios at lower costs.

Vendors can develop radios that use existing government-owned waveforms that are housed in the Joint Tactical Networking Center Information Repository. Using non-proprietary waveforms ensures interoperability across the services, streamlines the development process, supports competition and promotes greater affordability.

PM TR is leveraging the NDI approach to procure radios across three teams – Product Manager Airborne, Maritime/Fixed Station (PdM AMF), Product Manager Handheld, Manpack and Small-form Fit (PdM HMS) and Product Manager Mid-tier Networking Vehicular Radios (PdM MNVR). A fourth team –Product Manager Network Systems – was retired in March, and its mission was transitioned to the remaining PdMs.

THE AIRCRAFT LINK

PdM AMF oversees the development

of the Small Airborne Link-16 Terminal (SALT) and Small Airborne Networking Radio (SANR). SALT and SANR are software-programmable radios with the technology to connect rotary wing aircraft with ground units, allowing the transmission of data, voice and video over a wireless, secure network. By exchanging information and communicating with additional platforms, such as the Army’s aviation rotary wing fleet, Soldiers will gain a significant tactical advantage.

SALT uses the existing Link 16 waveform, in addition to the Soldier Radio Waveform (SRW), and is being procured for the Apache aircraft. The SANR uses three waveforms – the SRW, Wideband Networking Waveform (WNW) and the Single Channel Ground and Airborne Radio System (SINCGARS). The SANR is being developed for five aircraft types: Apache, Chinook, Black Hawk and Little Bird helicopters, as well as the Gray Eagle Unmanned Aircraft.

Both the SALT and SANR will be procured as NDI.

COMMUNICATIONS ON FOOT

PdM HMS is responsible for the Rifleman and Manpack Radios that form the backbone of the lower tactical internet. Both radios are not dependent on fixed infrastructure or line-of-sight communications and act as their own “routers” with networking waveforms to support communications for the most disadvantaged users.

Carried by Soldiers at the platoon, squad and team levels, the handheld Rifleman Radio uses SRW to transmit information up and down the chain of command, as well as into the upper tactical network backbone provided by the Warfighter Information Network-Tactical. The Rifleman Radio can also be linked to the Nett Warrior, an Android-based smartphone-like device that enables Soldiers to send messages, access mission-related applications and track one another’s locations with Global Positioning



System technology.

Through Low Rate Initial Production (LRIP), the Army has already purchased 21,379 Rifleman Radios, which are supporting dismounted operations in Afghanistan and enabling small groups of Soldiers to stay in contact with their higher headquarters as they spread out to assist their Afghan partners.

In May, the Army released a draft RFP to procure additional Rifleman Radios through a full and open competition, multi-vendor acquisition strategy. Initial contract awards are expected in FY15, which will be followed by Full Rate Production in FY 17 and then on-ramp opportunities for vendors whose technologies mature after the initial competition and operational tests.

Serving as a bridge in the network, the Manpack Radio is the Army's first two-channel SDR capable of supporting advanced and current force waveforms. By using the SRW, the Manpack creates self-forming, ad-hoc networks in any

battlefield scenario. The radio is installed in tactical vehicles or it can be carried by Soldiers at lower echelons of the Brigade Combat Team (BCT).

Through LRIP, the Army has already purchased 5,326 Manpack Radios, which have been fielded to two 101st Airborne Division (Air Assault) BCTs as part of CS 13, including the 2nd BCT, 101st Airborne, which deployed to Afghanistan in February. The Army will continue to field the Manpack to select BCTs as part of CS 14 and CS 15, while procuring future Manpack radios through a full and open competition, multi-vendor acquisition strategy.

BUILDING A MIDDLE GROUND

The MNVR program procures radios that provide a new "mid tier" in the tactical network, using commercial products that run the WNW and SRW. By operating as "nodes" in a mobile, ad-hoc network, the radios provide voice, data and video from

the upper tactical network at brigade and battalion to the lower tactical network at company and platoon echelons.

Following full and open competition, the Army awarded a delivery order in 2013 for the initial set of MNVR radios. The program is now in the formal developmental testing phase, with follow-on operational tests planned for Fiscal Year 2015. Fielding is expected in FY17.

LOOKING AHEAD

The Army continues to use feedback and lessons learned to shape radio procurement and delivery. With three teams in various stages of development, testing and fielding, PM TR's goal – to secure the best radios for Soldiers – is always at the forefront.

"Radios provide a critical link for Soldiers to communicate effectively and stay connected in the field," Ross said. "It's crucial that we provide the best radios that enable Soldiers to get the job done."

The full and open competition gives all vendors the opportunity to participate as we work together to build the Army network. The radio marketplace will support continuous innovation to deliver better radios for our Soldiers.

MG Daniel P. Hughes, PEO C3T



WAVEFORMS PROVIDE CRITICAL LINK



“Continuing to advance the waveforms is a critical part of the challenge and underscores the overall goal to create a radio marketplace.”

COL James Ross,
Project Manager for
Tactical Radios

While a Soldier relies on his or her radio to communicate, the radio won't help without the waveforms that provide the link.

The Army's goal to create a radio marketplace is becoming a reality as the Project Manager for Tactical Radios (PM TR) moves forward to procure next-generation radio hardware from multiple vendors. At the same time, the Army continues to advance the software so that each product can interoperate as part of a holistic, integrated network.

The waveforms used in software-defined radios provide secure wireless networking services for mobile and stationary forces to transmit voice, data, images and video. The Joint Tactical Networking Center (JTNC) certifies which products meet the standards and makes the waveforms available to both government and industry developers.

The Program Manager Joint Tactical Networking (PM JTN) is responsible for developing the waveforms and provides “clean” waveforms that have minimal vulnerabilities and a clean base code, enabling vendors to port the software onto their hardware platforms more easily.

Among the capabilities to recently achieve key milestones are the Soldier Radio Waveform (SRW), Wideband Networking Waveform (WNW), Link 16 and the

Joint Enterprise Network Manager (JENM).

SOLDIER RADIO WAVEFORM

The SRW provides networked wide-band communications that enable simultaneous, integrated combat net radio voice, data and video capabilities, without a “fixed” infrastructure such as a cell tower or satellite network. The SRW functions as a “node” or “router” within a radio network and transmits vital information across large distances and over elevated terrain.

The latest SRW version 1.2 has Combat Net Radio voice pre-emption, allowing leaders with higher authority to actively pre-empt an active talker with lower authority on the same call. The duplicate node detection Identification (ID) warns users when a duplicate ID has been configured in the network, decreasing network planning-related issues.

WIDEBAND NETWORKING WAVEFORM

The WNW provides network connectivity between aircraft and ground vehicles and re-routes and re-transmits communications when users attempt to communicate beyond line-of-sight. The latest WNW 4.0.8 version will increase the throughput and number of nodes supported simulta-

neously in a single network, improving the usefulness and flexibility of the waveform across all echelons. Soldiers can also send and receive Internet Protocol information from any source, while on-the-move.

MOBILE USER OBJECTIVE SYSTEM

The breakthrough MUOS waveform continues to progress in capability. MUOS uses satellites as if they were cell phone towers in space, allowing Soldiers to have voice, data and network connectivity from almost any point on Earth.

The Air Force Research Laboratory (AFRL) in August conducted an airborne MUOS risk reduction event, featuring the first in-flight demonstration of the MUOS waveform ported onto two different radios developed by two vendors - the PRC-155 HMS Manpack and the ARC-210 - on a C-17 aircraft. Both radios performed well, transmitting and receiving over the air, both while the aircraft was on the ground and while airborne. AFRL noted that they had received excellent results on voice quality, data exchange and airborne call completion rates. MUOS is expected to be fielded with the Manpack radio in 2017.

JOINT ENTERPRISE NETWORK MANAGER

The JENM is not a waveform, but rather a single network management software solution that provides consolidated support for tactical radios that use SRW and WNW. The JENM 1.2.8.1 provides upgrades for the HMS radios, including a software update for the Manpack Radio.

In future releases, a simplified JENM user interface will allow Soldiers to execute network management more quickly and decrease the risk of errors, while also reducing the amount of user training that is required. The Position Location Information (change frequency) that currently requires 14 or 15 mouse clicks on three different screens will be reduced to three to five clicks on one screen. A new grouping and filtering feature will enable users to complete a task across units or networks, reducing the time spent to complete the task.

NEW APP SIMPLIFIES UNIT TASK REORGANIZATION



Walk into any hotel lobby with a smartphone and it intuitively picks up available Wi-Fi networks. With a few simple clicks, it's connected.

Using that same concept, the Army has created a new tactical app to reduce a process that now requires several days and even weeks to plan and execute, down to three clicks and three minutes.

The On Demand Information Network app, known as ODIN, works by leveraging the network of the Army's situational awareness capability Joint Battle Command-Platform (JBC-P) to enable rapid, over-the-air mission planning for software-defined tactical radios.

"This has tremendous power," said Lt. Col. Michael Olmstead, product manager for JBC-P. "Even in today's fiscal climate, we know we still need to deliver new capabilities to our Soldiers, and doing it through apps is a smart way to make investments with what limited resources we have."

In Afghanistan, Soldiers conducting Security Force Assistance Brigade

missions used the Army's integrated communications package, known as Capability Set 13, to stay connected in harsh terrains. Yet, if two Army units equipped with these systems were to come in close proximity to each other, they wouldn't be able to communicate automatically over their radios unless they were preset to do so.

The process to get the two units on the same page and communicating is time consuming, manpower intensive and costly. ODIN, developed by Project Manager Tactical Radios engineers in six months using an Android-based open architecture, helps address this burdensome process known as Unit Task Reorganization (UTR).

ODIN was created as part of the Mounted Android Computing Environment (MACE), which provides a standard framework for mission command capabilities inside tactical vehicles.

MACE not only enables rapid development of new apps, but also apps that can repurpose existing capabilities, including

those that use the Ozone widget framework. In less than two weeks, MACE was used to easily leverage an existing information and intelligence capability known as the Tactical Ground Reporting system (TIGR), to produce a new TIGR app for use on smartphone-like Nett Warrior devices, tablets and in vehicles.

ODIN will be evaluated at the Network Integration Evaluation (NIE) process in 15.1.

Although ODIN doesn't solve all UTR issues, it does take a significant step in the right direction. Additional steps to enable fully automatic UTR network capability are already in the works.

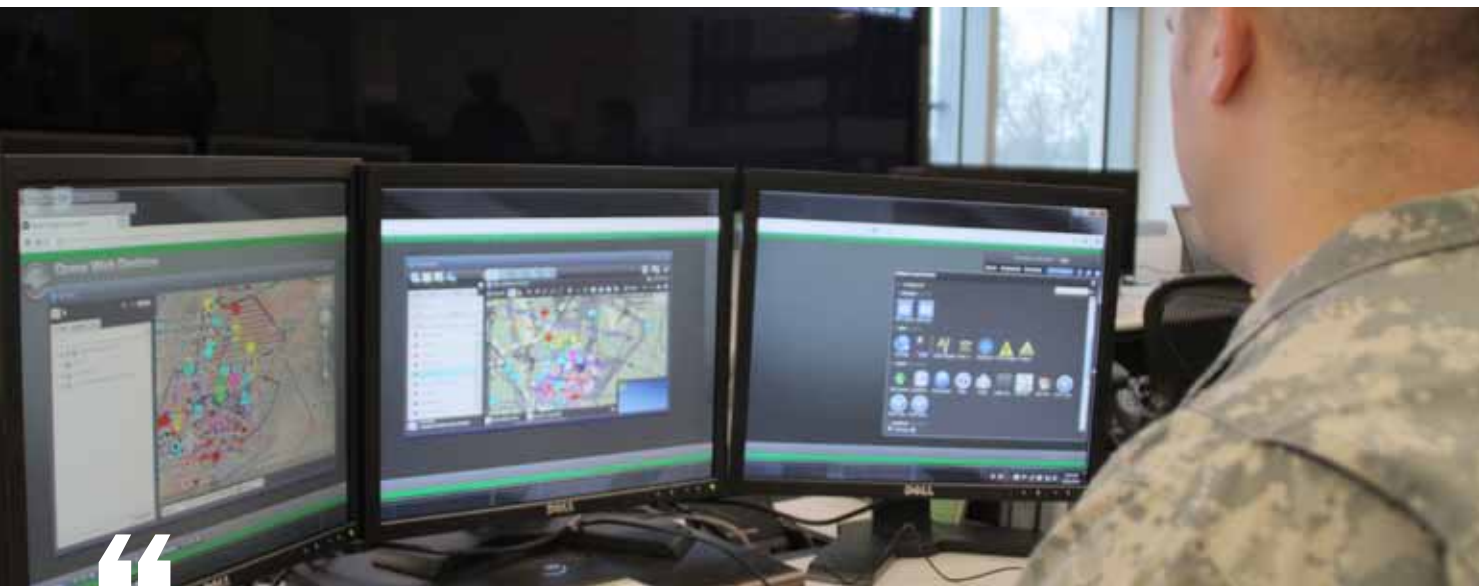
PEO C3T is leading a team to develop a plug and play architecture that will allow seamless, automatic, over the air network reconfiguration associated with force structure changes through a user-friendly graphical interface and automated execution process. Progress will be demonstrated along the way with the complete capability debut planned for NIE 19.1.

The apps are developed once, and through MACE, are capable of running on multiple hardware platforms at multiple echelons and across multiple networks. It enables simpler, common capabilities for the Soldiers.

Dan Stroka,
lead for MACE, PM MC



TACTICAL APPS SUPPORT MISSION COMMAND



The ability to build apps quickly will allow the Army to really keep up with doctrine on where Mission Command is going to go. That's going to revolutionize how we train and how we execute the fight in the Mission Command space.

MG Daniel P. Hughes, PEO C3T



Whether it's a request for fires support, convoy location, or friendly and enemy troop position – the Army now has a tactical app to support a vast range of missions.

Much like commercial apps are created for smartphones, tablets and other devices, the Army is now delivering apps, giving Soldiers the same “plug and play” experience they have mastered in their everyday lives.

“The Army is working aggressively to transition stand-alone mission command systems into sustainment, replacing them with an integrated, web-based environment that delivers those functions as user-friendly apps merged with the common operating picture of the battlefield,” said Col. Michael Thurston, project manager for Mission Command. “This strategy keeps today’s tech-savvy Soldier in mind and allows us to incorporate new technologies faster and at lower cost.”

Most importantly, these capabilities are becoming interoperable across the entire tactical realm, from the command post, to the vehicle, down to the dismounted Soldier on patrol.

COEs SET THE STAGE FOR WEB APPS

To help accelerate the transition to web-

based capabilities, the Army established the Common Operating Environment (COE). The COE is an approved set of computing technologies and standards designed to reduce stovepiped systems by enabling developers to rapidly build and field secure applications that interoperate across several computing environments (CEs).

“I am very pleased with the progress we have made moving to a COE,” said Lt. Gen. Robert S. Ferrell, the Department of the Army’s Chief Information Officer (CIO)/G-6. “Being able to plug and play, increase interoperability and work seamlessly – based on common standards – really will improve the way the Army conducts operations while in garrison and deployed.”

The three CEs that support the tactical realm – the Command Post (CP CE), Mounted (MCE) and Mobile/Handheld CE – have collaborated to bring greater commonality and simplicity to the maps, messaging and applications that Soldiers use across all of these environments.

CP CE uses the Ozone framework, allowing commanders and staff -- using any government-authorized laptop connected to the appropriate classified network -- access to the tactical app specific to their mission. Soldiers can layer the displayed information as needed on the common, geospatial map for collaborative planning

and decentralized execution across all warfighting functions.

Whereas the CP CE converges systems in the command post, the MCE brings together the diverse mission command systems inside vehicle platforms, shrinking the communications hardware footprint where space is at a premium.

In May, Project Managers Mission Command and Joint Battle Command-Platform, the two organizations responsible for developing the CP CE and MCE, merged to establish an enhanced PM Mission Command that will help drive the Army’s COE initiative.

Each product office has a solid track record of delivering capabilities that enhance the commander and staff’s situational awareness, from the command post capabilities for maneuver, fires, air space and logistics to friendly force and enemy tracking and messaging capabilities from inside tactical vehicles.

“By mixing the expertise of both PM JBC-P and PM MC, we can create a more seamless experience from company to Corps,” said Maj. Gen. Daniel P. Hughes, PEO C3T.

THE ARMY’S APP STORE

The overarching goal of the COE is to increase interoperability between CEs,



and the CP CE and MCE continue to increase horizontal and vertical integration for synchronized operations.

For example, during any given mission, only a few Soldiers in the Tactical Operations Center (TOC) have access to a particular mission command system. With web apps created under CP CE, any Soldier with approved access can collaborate across systems and echelons.

"If I'm a field artilleryman, I may be interested in the fires app and the weather app, but I may have a shipment of 155 rounds coming in that I may want to track, so I would also wish to access the logistics app to ensure I can complete the mission," said Lt. Col. Shane Taylor, product manager for Tactical Mission Command. "I may also need an app to access the current air picture to see where live tracks are flying, or if I am an Intel analyst I may turn off all the other layers and focus only on the enemy situation."

In the vehicle environment, JBC-P provides the foundation for the MCE, allowing Soldiers to access applications and the tools they rely on today such as Tactical Ground Reporting (TIGR). By incorporating TIGR as an app on JBC-P, Soldiers on patrol can access a searchable database of unit activities that uses a Google Earth-like interface, pictures and

text to track people such as local police chiefs, religious leaders or other key figures for counterinsurgency and stability operations.

SMARTPHONE CONNECTION

This user-friendly JBC-P framework will also operate seamlessly with the smartphone-like Nett Warrior devices that deliver timely blue force tracking and situational awareness information down to dismounted Soldiers.

Using the Mounted Android Computing Environment (MACE) standard framework, a part of the MCE, the JBC-P and Nett Warrior programs have collaborated to implement common messaging formats and mapping standards for critical combat information such as calls for Medevac, reports of sniper fire or friendly and enemy locations.

Another exciting capability planned for Nett Warrior is the Army's next generation of "call for fires" technology, the Mobile Handheld Fires Application (MHFA). Forward observers equipped with the MHFA will gain "sensor-to-shooter" capability, meaning they will receive real-time geospatial intelligence on their intended target. They will also receive unclassified imagery compatible

with the Nett Warrior device and the ability to process a digital call for fire, making them an even greater asset to ensure the right weapon strikes the right target at the right time.

INDUSTRY PARTNERSHIPS SPAWN AGILE SOLUTIONS

To help keep pace with state-of-the-art web capabilities, PM MC is delivering Software Development Kits (SDKs) for both the CP CE and MACE to ensure both government and third party developers can build to the common framework. In addition, to ensure the Army adapts its acquisition processes to match these technological innovations, PEO C3T is working across the community, including with the CIO/G-6 and the Army Test and Evaluation Command, to set the parameters for how to perform agile assessment and certification of these apps so they can be delivered much more quickly than typical Programs of Record.

"We want to be able to certify an app for delivery in six months or less," said Portia Crowe, COE lead for PEO C3T. "By applying the standards and agile development methods enabled by the COE, we are driving toward a common user experience across the tactical formation, anytime, anywhere and on any device."



NEW COMPUTERS AND TABLETS FOR TACTICAL VEHICLES



A new, standardized family of tactical computers and tablets will soon provide Soldiers with interoperable mission command functions inside vehicles, while reducing space constraints and system costs.

As early as January 2015, Soldiers will be fielded the Mounted Family of Computer Systems (MFOCS), replacing separate stand-alone systems found within a vehicle with a single computer system that is tailorable and scalable to the mission. Ranging in options from a detachable tablet to a fully-loaded,

vehicle-mounted workstation, MFOCS runs multiple software applications on a single hardware solution inside the vehicle – significantly reducing size, weight and power (SWAP) demands.

"MFOCS eliminates the burden of operating different computers in the same vehicle," said Dominic Satili, network and hardware branch chief

for Project Manager Mission Command. "It brings a single tactical computer that is scalable to the mission and able to run several mission command applications."

MFOCS not only brings interoperability to vehicle-mounted tactical computers, it also reduces the cost of the basic configuration computer by as much as 35 percent that might be perceived as impossible.

Designed to run Joint Battle Command-Platform (JBC-P), the Army's primary situational awareness capability, the system also supports other command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) applications.

Recently, MFOCS basic and intermediate models exceeded testing reliability requirements and recorded zero hardware failures during Network Integration Evaluation (NIE) 14.2. The evaluations were performed in conjunction with JBC-P's formal test at NIE 14.2.

MFOCS fits in the same hardware footprint and uses the same installation kit as

the existing Force XXI Battle Command Brigade and Below/Blue Force Tracking (FBCB2/BFT) and Joint Capabilities Release (JCR) systems. These technologies are the situational awareness predecessors to JBC-P and have been integrated on more than 120,000 platforms, reside in each tactical operations center and are fielded to every brigade combat team in the Army.

MFOCS will begin fielding to Infantry Brigade Combat Teams in January, followed by units equipped with Capability Sets and as part of the Army Force Generation process.

Moving forward, MFOCS will support the Mounted Computing Environment (MCE), one of six computing environments that are part of the Army-wide Common Operating Environment (COE). The COE strategy embraces a commercially-based set of standards that enable secure and interoperable applications to be rapidly developed and executed across the computing environments.

**MFOCS
WAS RECENTLY
ACCEPTED BY
PEO GROUND COMBAT
SYSTEMS AS THE
STANDARDIZED COMPUTER
FOR ITS FLEET OF ARMORED
VEHICLES. INTEGRATION OF
MFOCS COULD BEGIN
AS EARLY AS FALL
2015.**

SOLDIERS, MARINES TEST JBC-P



Transforming the way units communicate and navigate, the Army's next generation situational awareness and friendly force tracking system received an unprecedented joint service workout on its way to the field.

Marines and Soldiers fought side-by-side to test the capability known as Joint Battle Command-Platform (JBC-P) during the Army's Network Integration Evaluation (NIE) 14.2 held in spring 2014.

"Over the past 10-plus years of working together in Afghanistan and Iraq, the interoperability of the services has increased," said Lt. Col. Jeff Stevenson, battalion commander for the 2nd Battalion, 8th Marine Regiment. "Any time there's an opportunity to bring everyone together and work through those things in a peacetime type exercise such as an NIE, it helps us so we're not learning those lessons as we go forward into a

combat zone."

Primarily used in vehicles, JBC-P helps reduce the "fog of war" by showing a complete picture of the battlefield so units can synchronize operations. Today, that information is also being delivered down to the dismounted Soldier through the Army's handheld mission command system, known as Nett Warrior.

JBC-P was built on user feedback and designed with today's tech-savvy Soldier in mind, featuring touch-to-zoom maps, drag-and-drop icons and a Google Earth-like interface.

"This interface is far more user-friendly," said 1st Lt. Jeffrey Weinmeister, assistant operations officer with the 2nd Battalion, 8th Marine Regiment. "It makes it very easy for the first-time user to effectively perform command and control operations."

FBCB2/
BFT IS
INTEGRATED
ON MORE
THAN 120,000
PLATFORMS

Described as having 'eyes on the battlefield,' JBC-P brings a faster satellite network, secure data encryption and improved chat messaging. It is the latest incarnation of the widely fielded friendly force tracking system known as Force XXI Battle Command Brigade-and-Below/Blue Force Tracking (FBCB2/BFT).

The 900 Marines fought alongside the Army's 2nd Brigade Combat Team, 1st Armored Division, at Fort Bliss, Texas, as part of NIE 14.2, the seventh in the Army's series of semi-annual field exercises designed to accelerate and improve the way communications technologies are delivered to Soldiers.

JBC-P also performed several successful risk reduction events leading up to its test at the NIE. Fielding of JBC-P is expected to begin in Fiscal Year 2015.

This allows us to know where the enemies are, so I can make sure our guys aren't going too far into a danger zone.

Lance Cpl. John Allen
Sargent, 2nd Battalion,
8th Marine Regiment



ARMY STREAMLINES NETWORK ENABLERS



PD Net E will provide a common axis of acquisition discipline and resource efficiencies.

Stanley Niemiec,
Project Director
Network Enablers



As the Army moves to a streamlined and more user-friendly tactical network, the hardware, software and processes that keep it running and secure have realigned to reduce complexity and costs.

Together, these products serve as the critical enablers of the Army's tactical communications and data network. They simplify network tasks and operations for warfighters and first responders; ensure the information transmitted is secure and reliable; and bring efficient delivery of hardware and software solutions to meet today's changing technology needs.

This realignment, which took place in mid-February, brought several organizations under one roof and established the Project Director Network Enablers (PD Net E) under PEO C3T.

"The idea is to bring commonality and interoperability to the network to support dynamic operations and improve the user experience," said Stanley Niemiec,

project director for Net E. "By setting standards for our enablers -- the ports, cables, mounts, chips, algorithms and other 'guts' of the network -- we will reduce complexity, reduce costs and give Soldiers the tools they need to be more expeditionary and more effective."

PD Net E consolidated the offices of three former organizations to effectively manage the infrastructure burden of the network without sacrificing function or mission. Building upon the significant success that Project Director Communications Security (COMSEC) built over the last three years as a central hub for COMSEC standardization and funding efficiencies, PD Net E takes a similar approach to other critical network enablers such as initialization tools and common hardware platforms.

The new organization will partner with all Command, Control, Communications, Computers, Intelligence, Surveillance and

Reconnaissance (C4ISR) product teams, setting the standard for operational coordination.

PD Net E manages five product directors: COMSEC Cryptographic Systems, which procures, tests and fields COMSEC solutions to secure the Army's information against cyber threats; Common Hardware Systems, which supplies the Soldier with state-of-the-art computer and networking equipment; Initialization, which delivers relevant network initialization capabilities to the Soldier; Key Management, which provides encrypted key management solutions; and Tactical Network Architectures and Configurations - Current, which integrates the current force network and ensures interoperability of networking products and solutions. Each part of the Net E portfolio is making progress toward the goal of providing simplicity and commonality for the Soldier.

GIVING SOLDIERS THE POWER OF CHANGE

The Army is introducing a more efficient process to produce the digital “glue” that ties together the network architecture for the Network Integration Evaluations (NIEs).

The new method is not only faster, but also provides greater flexibility as the Army adds systems to the network baseline for evaluation and incorporates capability improvements for each NIE event. By automating key parts of the process used to create the data products that enable communications across the tactical network, PEO C3T is also setting the stage to simplify network start-up procedures for users and give operational units more control over their networks.

“We shaved off several weeks of production time while delivering a better result to support the NIE,” said Randy Young, deputy project director for Network Enablers. “And it’s only a first step – what we’re doing for NIE will also be a proof of concept informing improvements to how Data Products are delivered and used across the force.”

Data Products are a collection of mission data required to initialize the Army’s network, enabling the flow of digital information between different communications systems. PD TNI builds a unique Data Product for each Army unit, taking into account its specific mission, personnel footprint and mix of networked mission command systems.

Building Data Products for the NIE, however, poses a more complex undertaking than building them for a typical unit. While the Army’s usual 12-week production process was designed to deliver a complete, “set in stone” product – when the interoperability of a deploying unit’s network hinges on it, there is no margin for error – the NIE architecture is, by its nature, always changing. Systems are added to or subtracted from the evaluation list for a particular NIE. Vendors unfamiliar with Army network protocols need time to adapt their systems to Army standards.

“The NIE requires a lot of flexibility



because it’s an experiment, and also has systems from outside the Army connecting to the network,” Young said. “The network evolves over time as we get closer to each event.”

But the need for accuracy doesn’t go away – it is amplified, given that the NIE provides operational test data for programs of record, validates the Army’s network baseline for fielding and collects Soldier feedback on promising industry capabilities.

“If the data product is broken, there will be major issues at the actual event,” Young said.

To address these challenges, PD Net E oversaw the implementation of the NIE Database Tool (DBT) to produce data products for the NIE. The NIE DBT and accompanying process improvements resulted in a reduction in time to provide an initial NIE Data Product from what was originally 15 weeks down to 6 weeks for

NIE 15.1 this fall.

PD Net E expects to reduce this timeline even further, down to just three weeks for future NIEs. The NIE DBT also summarily reduced the unit Data Product cost per event from \$175,000 down to approximately \$40,000. PD Net E is now leading the expansion of this functionality beyond the NIE events to data production for operational units, which could lead to more than \$10 million in annual cost avoidance.

These improvements are considered interim steps to a long-term Data Product solution that will enable full “dynamic initialization of command and control applications,” Young said.

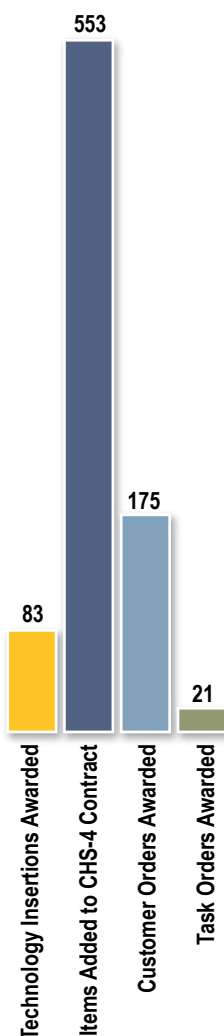
“Ultimately, we want to give users more power to build, maintain and adapt their tactical networks,” he said. “Through the process and capability enhancements shown through NIE, we are absolutely on the right path.”

**DATA
PRODUCT
COST PER
EVENT DOWN
FROM \$175,000 TO
APPROXIMATELY
\$40,000**

HARDWARE MARKETPLACE SUPPORTS COE



Total Awarded on CHS-4 Contract:
\$323,952,356



The Army is creating a standard marketplace of tactical communications hardware to support the Common Operating Environment initiative and deliver a familiar and intuitive experience for Soldiers.

The Common Hardware Systems (CHS) program office maintains a portfolio of commercial technologies that satisfy tactical requirements including servers, clients, network routing and switching devices, ruggedized laptops, handheld devices, operational transit cases and other peripheral devices. As the Army advances the COE framework to support the rapid development and delivery of secure, interoperable software applications, CHS is coordinating with multiple programs to facilitate efficient procurement and sustainment of hardware items across the COE, while leveraging industry innovation to supply the latest technologies to Soldiers.

To align COE and other elements of the Tactical Network Modernization Roadmap in support of the Army's Force 2025 operational goals, CHS will also provide a contract vehicle and link for industry to deliver intuitive, versatile solutions that feed into the PEO C3T roadmap, said Danielle Kays, product director for CHS.

"CHS will collaborate with other contract vehicles to manage a competitive, commercial off-the-shelf information technology marketplace that allows programs to procure common platforms in the most effective and cost efficient means," Kays said. "The goal is to streamline the end-user experience for Soldiers by providing a single look and feel that minimizes time

and dollars required for training while allowing units to focus on their mission."

Since its launch in 1987, the CHS program has provided a consolidated acquisition approach for tactical technology solutions, offering economies of scale and complete lifecycle management and warranty for systems of all sizes and varying levels of ruggedization. Combining a prime contractor with options for small business procurement and Army organic support, CHS serves as a broker uniting Army programs with the technologies that meet their requirements.

The role of CHS is now expanding as the Army implements the COE, which aims to reduce stovepipes and deliver Soldiers a "plug and play" experience whether they are accessing information on secure handheld devices, vehicle mounted systems or command post screens. The CHS menu will support standard tactical hardware requirements within each of the COE's six computing environments (CEs) – data cloud, command post, mounted, mobile, sensor and real-time safety-critical or fires and missiles – as well as products such as tactical laptops that are used in several different environments. This will help program offices to easily align their procurement plans with COE, while promoting greater commonality across the CEs for a seamless user experience.

"Programs and operational units that are not categorized under a CE will also be able to leverage the marketplace, in-

creasing interoperability and efficiency across the entire Army," Kays said.

With a broad base of expertise in tactical commercial off-the-shelf information technology (COTS IT) solutions for the military, CHS also provides programs with market research and analysis on specific capabilities in advance of procurement. The CHS program office works closely with vendors of all sizes – not just in response to Army requirements, but also proactively, to influence the direction of tactical COTS IT development in key areas affecting the military.

In addition to the relationship with industry, CHS also offers a strong connection to the Army organic industrial base. Several organizations such as Program Director Counter-Rocket, Artillery and Mortar (PD C-RAM) and Product Manager Tactical Mission Command (PdM TMC) are leveraging CHS task orders to enable Tobyhanna Army Depot, Pa., to provide hardware repairs, refresh and other support – including purchasing and installing ancillary items needed to upgrade systems to meet current specifications.

"CHS has always been a one-stop shop for tactical COTS IT acquisition and sustainment, but collaborating with the organic industrial base takes that efficiency one step further for the programs we partner with," Kays said. "We will continue to evolve to support the Army's priorities for interoperable, scalable and intuitive communications technologies across a portfolio of contractual vehicles."

**OVER
\$100M
EFFICIENCIES
FOR THE ARMY AND
DOD PROGRAMS
IN THE PAST 12
MONTHS**

THAT'S THE TICKET: NEW TOOL FOR FIELD SUPPORT



Cutting through the red tape of reporting trouble tickets, a new tracking tool is allowing Soldiers to manage field support issues more quickly, easily and accurately.

This new capability, known as the Unified Trouble Ticketing System (UTTS), integrates three existing trouble ticketing systems, creating a seamless online reporting form accessed through an Army unit's SharePoint portal so it is intuitive and easily accessible to Soldiers.

UTTS, created by PEO C3T's MilTech Solutions office, is being piloted in 2014 with the 1st Infantry Division at Fort Riley, Kan., which will help determine the specific needs for managing field support issues at the Garrison level. UTTS will also be formally reviewed as a System Under Evaluation (SUE) at the Network Integration Evaluation 15.1 held at Fort Bliss, Texas, a crucial step towards attaining Army Program of Record designation.

UTTS ensures a trouble ticket is managed at the most effective level of field support. Tickets originate on the unit's SharePoint portal. From there, they can be escalated through the Army's Single Interface to the Field (SIF) capability, so requests are routed to the appropriate support team. The SIF also then serves as the 'switch' to route the ticket and accompanying details to the right help desk at higher echelons, if required. Prior to UTTS, there were separate processes and tools for trouble tickets at the unit level, C4ISR tactical support level and enterprise level. If a ticket had to be escalated between the three domains, a new ticket was created at each level, losing the prior history and trouble-shooting information.

"It essentially provides a simple and manageable bridge between field support on the SharePoint side with the more sophisticated capability on the enterprise side," said Dan Hamilton, SIF project lead.

With a focus on seamless integration, simplified task management and increased productivity, MilTech this year launched SharePoint 2013 Collaborative Services to its eight-member consortium. The new version interoperates with Microsoft Outlook calendars and tasks, and adds integrated access to documents from Office 2013 applications. Features include a new web-friendly interface with simplified messages and a standardized user experience; a robust business intelligence and enterprise reporting capability; and an optimized Microsoft Project Server capability that facilitates unified resource and schedule management.

The overall goal is to get help quicker to the Soldier on the ground. This brings much faster support at the brigade level so Soldiers resolve issues at a much quicker pace, with more efficiency overall.

Sergeant Bill Hill,
Brigade S6 Helpdesk
Non-Commissioned
Officer in Charge (NCOIC)
with the 2nd Brigade, 1st
Armored Division (2/1 AD)



ARMY REALIGNS FIELD SUPPORT TO SOLDIERS



**309
FIELD
SUPPORT
REPs
SEPT '13**

**PEO C3T's
OEF
DRAWDOWN**

As the drawdown from Afghanistan continues and military spending decreases, the Army is embracing a field support concept where Soldiers serve as the first line of defense for troubleshooting of mission command and network capabilities.

This realignment, pioneered by PEO C3T and the command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) community, will shape field support to meet the needs of the smaller, more mobile and agile Army of 2015 and beyond.

The concept builds on a Soldier-tested, four-tiered process tailored to smartly do more with less, while avoiding across-the-board cuts to field support personnel. It also aligns with the Army's overall effort to deliver simplified, more intuitive communications systems that require less training and field support.

This new model will save the Army \$70 million over the next six years, and when implemented across all Army garrisons within the U.S., could save more than \$400 million during this same timeframe.

"This effort doesn't decrease the level of support to the U.S. Soldier," said Richard Licata, field support optimization chief for PEO C3T and co-lead of the C4ISR Field Support Integrated Process Team (IPT). "Instead, it's utilizing smaller, multi-functional field support teams to accomplish the same level of support, while at the same time transitioning a decade's worth of contractor-developed knowledge back into the hands of the Soldier."

The new field support construct, developed by the C4ISR Field Support IPT – which consists of PEO C3T, the U.S. Army Communications-Electronics Com-

mand, Tobyhanna Army Depot and PEO Intelligence, Electronic Warfare & Sensors – addresses the need to provide a baseline of support instead of a one-size-fits all solution. It enables Soldiers to be at the forefront of weapon system maintenance and issue resolution, through a multi-level support structure where technical issues are resolved at the lowest level possible and are escalated vertically through the "tiers," as additional, more system-specific support is needed.

To validate the new model, the IPT team conducted two pilot programs at the National Training Center (NTC) at Fort Irwin, Calif., and the Joint Readiness Training Center (JRTC) at Fort Polk, La. This information was combined with an extensive data review of more than 15,000 historical Combat Training Center (CTC) trouble tickets, which provided



insight into the types of incidents occurring and the level of support required to resolve the issues. Results indicated that approximately 95 percent of the workload could have been resolved by Soldiers or multifunctional personnel organic to the unit and that more than 75 percent of incidents recorded at CTC rotations were training-related.

Under the new tiered field support plan, Soldiers are the first to troubleshoot issues. If they are unsuccessful they can escalate a trouble ticket to a tier 1 team of multifunctional logistics assistance representatives (LARs), Digital System Engineers (DSEs) or select Field Service Representatives (FSRs) for mission critical or high-density systems. This multifunctional team has the capability to cover all C4ISR weapon systems in the field, and each member is aligned to a specific

weapon system or group of weapon systems based on skill set requirements. The individuals assigned to the escalated ticket will not only work to resolve the issue, but also be required to share the resolution technique with the Soldier through over-the-shoulder training.

If resolution is unattainable, the appropriate system-specific subject matter experts at tier 2 will attempt to resolve the issue primarily through remote or telephonic support, and if needed, pass to tier 3 engineers to determine a hardware/software modification.

The new tiered construct comes after more than 12 years of war when, in response to urgent capability needs, mission command and network systems were brought to theater at a rapid pace, equipping Soldiers with the technology needed to effectively complete their mis-

sions. However, the quick delivery of new capabilities to Soldiers who were continuously engaged in deployment preparation meant that they often lacked the time to expertly operate and maintain C4ISR equipment. To ensure mission critical capabilities were in constant working order, the Army utilized the expertise of FSRs and DSEs who were embedded with Soldiers and worked side-by-side to maintain equipment readiness and provide technical assistance.

With the successful validation at NTC and JRTC, the new structure has begun fielding to posts, camps and stations within the Continental United States (CONUS) this year. Implementation began with installations in CONUS Central and will continue through installations in CONUS West and CONUS East, supplementing the Army's BCT reorganization.

30
FIELD
SUPPORT
REPs
JAN '15

WORKFORCE SPOTLIGHT

Uniting Soldiers and tactical communications technologies in unpredictable scenarios and rough terrain, the Army's Network Integration Evaluations (NIEs) provide an operational laboratory to incrementally enhance the Army's network. PEO C3T's dedicated NIE workforce on the ground at Fort Bliss, Texas, and White Sands Missile Range, N.M., faces harsh conditions and constant pressure to meet testing milestones. These four individuals provide a glimpse into the larger team's effects.



ARTHUR L. DEAN
Functional Analyst
28 months on job
24 years, U.S. Army

The job: I provide on-site support to any unit receiving Initialization (Data Products) during their initial Tactical Operations Center (TOC) checkout, ensuring all files are installed and functioning properly as designed according to the unit's systems architecture. I also ensure several other configuration files related to network equipment, such as Cisco routers, switches, firewalls and other networking hardware, are functioning properly. I interface with other FSRs to ensure correct file installations and server configuration, provide the most current mapping files for accurate situational awareness. I also conduct "over the shoulder" initialization training with units during their setup phases, ensuring that key personnel understand the principles of the systems architecture, situational awareness and message flow.

Biggest challenge: NIE is a big event for PEO C3T and specifically Project Director Network Enablers, Product Director Initialization, where I'm assigned. There are many responsibilities I have to support the warfighter, PEO C3T, and Initialization internal team so completing all assigned tasks on time can be challenging.

Most rewarding: My biggest reward is supporting the warfighter, and helping PdD Initialization's internal team achieve our assigned tasks.

The experience: It's been so rewarding being able to test advanced equipment that's going to allow the warfighter to have enhanced capabilities. To witness various platforms integrate, dynamically changing the battlefield by maintaining persistent connections is amazing. The planning, conference calls, timelines, builds, modifications and executions of many hours from government and contract workers has made my time worthwhile in every way.



DOUGLAS GORDON
Application Integrated Process
Team (IPT) lead
2 years on the job
4 years, U.S. Army

The job: On a typical day we start with the Network IPT meeting, which is a forum for all to provide updates, discuss any new issues, and sync with other PMs. Following that, I would be involved with whichever is the most critical issue that involves system interoperability.

Biggest challenge: Personnel who do not understand what a system does or who operates it, yet report that a system is having an issue.

Most rewarding: The personal satisfaction when an issue is resolved. Because of the constant change in systems and architecture, there are times where we are troubleshooting something for several days. Typically, I like issues to be resolved in less than half of a day. The ones that take a long time, though, also provide the most relief once completed.

The experience: My experience with NIE has been great. I have learned a tremendous amount about how all of these systems work and how they share information together. I also like that there is always a change to adapt to. I do not like monotony. No day is ever like the one before and no exercise is like the previous one.



ROBERT H. CARR
NIE Site Lead - PM Warfighter
Information Network-Tactical (WIN-T)
23 months on the job
30+ years, U.S. Army

The job: Serve as the PM WIN-T liaison for the TRIAD Leadership (SoSE&I, ATEC and BMC).

Biggest challenge: The hardest part of this job is dealing with unforeseen challenges/issues that arise inside of a hard schedule to support the NIEs. We have to make the hard decisions and work a great many hours to ensure that all of the stakeholders have what they need to go into VALEX and the record test, as WIN-T is the backbone of the network.

Most rewarding: As the biggest challenge is the complexity and hard work, the biggest reward is when SoSE&I completes the VALEX and hands the network over to 2/1 AD as they prepare to go to the field and test equipment that will enhance the Army's ability to communicate and provide great products to the warfighter as they continue to protect us in the future.

The experience: Overall this has probably been the best experience I have had in my 30+ years serving in and supporting the Army. The personnel working within PM WIN-T are among the most professional, hardworking and mission focused team I have had the privilege to work with. As we make up part of a larger team, we are fortunate to have such a great group of people supporting the NIE as we move forward as part of PEO C3T.

BRIAN ASCHLE
JBC-P Fielding Coordinator/
NIE Execution Lead
2.5 years on the job
20 years, U.S. Army

The job: As a fielding coordinator, I plan and execute Unit Set Fieldings of PdM JBC-P hardware and software to the units, which includes conducting briefs to brigade and above, conducting site visits to ensure availability of facilities, surveying vehicles and planning new equipment training. Also, as the PdM's NIE execution lead I coordinate with the System of Systems Engineering and Integration Directorate to coordinate removing old hardware and installing new hardware. I also develop a software load plan coordinated with other programs for the loading exercise (LOADEX) and validation exercise. As the NIE gets closer, the days get longer. After NIE begins, a team of 10-12 personnel loads, configures and validates 650+ vehicles for eventual turn over to the unit for the record test. This takes three months from start of LOADEX to the end of testing, then we start all over again.

Biggest challenge: Balancing these two responsibilities. I find it difficult to give the commanders of my fielding units my full attention while I am simultaneously giving NIE 12+ hours a day.

Most rewarding: Seeing the commanders and Soldiers using the new capabilities to their full potential. Their input has helped to develop a product that I know will be the best it can be when we get it out to the field. Also, being given the opportunity to build and develop a first class team of field support representatives in support of the NIEs.

The experience: I have experienced a broadening of my knowledge that I would not have otherwise. My background has been in the upper tactical internet (TI), while JBC-P is considered lower TI. Though these lines are becoming blurred as we continue to interconnect the two, I have been able to apply my knowledge of these two distinct systems in assisting with bringing them together.

DEGROODT HONORED AS SAMMIE MEDAL FINALIST



Patrick DeGroodt, deputy product manager for the Army's Warfighter Information Network-Tactical (WIN-T) Increment 2 program, was named a finalist in the prestigious 2014 Samuel J. Heyman Service to America Medals (Sammie) awards, along with 32 other individuals representing agencies across the federal government.

He was nominated for his work in helping to provide mobile tactical network communications to Soldiers in Afghanistan, where users have referred to the network as their "digital guardian angel."

"Pat DeGroodt has made a tremendous impact on Army communications, and we are thrilled to see him recognized for his commitment and hard work," said Mary Woods, deputy PEO C3T. "He is a team player who is very in tune with Soldiers' needs for information, and is constantly looking for ways to improve our technologies on their behalf."

The Sammies are presented annually by the nonprofit Partnership for Public Service to recognize outstanding federal employees who have made significant

contributions to the nation. The finalists were honored at a tribute breakfast on May 6 at the Russell Senate Office building, Washington, D.C., with the final awards ceremony to be held in September.

"Pat DeGroodt has made a monumental impact on the future of Army tactical communications that will positively impact Soldiers for decades to come," said Col. Ed Swanson, project manager for WIN-T. "His dedication and commitment to providing the best equipment and capabilities possible is unmatched."

DeGroodt's program management skills continue to contribute to the successful development, integration, testing and fielding of WIN-T Increment 2, the first satellite and line-of-sight communication system that automatically tracks and maintains connectivity while combat vehicles are on-the-move, in all terrain and environments. He has helped provide critical communications links to Soldiers, while consistently increasing network performance, making the system easier to use and reducing program costs



by nearly \$725 million.

"As part of the WIN-T team I worked on some of the early on-the-move satellite communications capabilities when they were just emerging technologies," DeGroodt said. "To have gone from early engineering prototypes to actually fielding terminals in support of a brigade of Soldiers who are operating this equipment in wartime conditions is very gratifying. It's been the result of a great team effort, and I take pride in being part of that team."

CHANGE IN COMMAND



COL. WYGAL LEAVES PM TR, RETIRING AFTER 30 YEARS OF SERVICE

Col. William (Russ) Wygal retired from the Army in 2014 after serving in a variety of leadership positions in aviation, military intelligence and acquisition, leading several organizations to mission success. Most recently, Wygal led the effort to unite four Acquisition Category (ACAT) 1D radio programs from multiple services into a single Army management office, after the Joint Program Executive Office for the Joint Tactical Radio System (JPEO JTRS) disbanded. The Project Manager Tactical Radios (PM TR) was stood up in 2012, and Wygal led the team until his retirement from the Army in 2014.

Wygal was instrumental in establishing an innovative acquisition ap-

proach to procure lower-cost, commercially-available radios. Under the Non-Developmental Item (NDI) acquisition strategy, industry partners will fill the hardware requirements, while leveraging existing government waveforms. Due to his efforts, thousands of Soldiers from the 10th Mountain and 101st Airborne Divisions were successfully fielded and trained with the Army's most advanced radio technologies in support of their deployments to Operation Enduring Freedom.

Wygal's motto – provide the right radio, at the right time, in the right place to the Army and other Services to meet mission requirements – is well-known throughout the PM TR team and will provide a lasting legacy.



PROJECT MANAGER FOR MISSION COMMAND RETIRES AFTER FORGING A PATH FOR NEXT- GENERATION COMMAND POST TECHNOLOGIES

Fulfilling his intentions to serve, learn, lead and mentor, Col. Jonas Vogelhut retired from the Army in 2014. His career spanned 25 years, and included assignments in the Chemical Corps and Acquisition Corps, where for the past three years he served as the Project Manager for Mission Command (PM MC) until May 2014.

As PM, he provided leadership and support to deployed and deploying forces by successfully delivering highly reliable, mission critical systems such as Command Post of the Future (CPOF), Advanced Field Artillery

Tactical Data System (AFATDS) and Battle Command Sustainment Support System (BCS3). Vogelhut was instrumental in modernizing command post technologies by leading the Command Post Computing Environment (CP CE) effort as part of the Army-standard Common Operating Environment (COE) for software on the battlefield. Vogelhut stressed that CP CE is giving the commander the ability to balance the art of command with the science of control, which is the precise definition of mission command.

PM MISSION COMMAND, OUTGOING



COLONEL JONAS VOGELHUT
PM Mission Command

PM MISSION COMMAND, INCOMING



COLONEL MICHAEL THURSTON
PM Mission Command

PM TACTICAL RADIOS, OUTGOING



COLONEL WILLIAM R. WYGAL
PM Tactical Radios

PM TACTICAL RADIOS, INCOMING



COLONEL JAMES P. ROSS
PM Tactical Radios

Pd FIRE SUPPORT COMMAND AND CONTROL, OUTGOING



LIEUTENANT COLONEL LARRY D. GLIDEWELL
PM Mission Command

Pd FIRE SUPPORT COMMAND AND CONTROL, INCOMING



MS. JULIA N. RUHNKE
PM Mission Command

PdM TACTICAL MISSION COMMAND, OUTGOING



LIEUTENANT COLONEL THOMAS F. BENTZEL
PM Mission Command

PdM TACTICAL MISSION COMMAND, INCOMING



LIEUTENANT COLONEL JACK S. TAYLOR
PM Mission Command

COMMUNITY SUPPORT



PEO C3T COMMS EQUIPMENT SUPPORTS NATIONAL GUARD



Army National Guard units wear two hats: they support civil missions, such as homeland disaster relief efforts, and execute military missions when they deploy to theater. The Army continues to field the Guard with advanced radios, network communications equipment and mission command systems that are flexible enough to support both of these objectives.

"When we deployed in Afghanistan, we were the brigade headquarters over two expeditionary signal battalions (ESBs), one was active duty and one was Guard," said Chief Warrant Officer Matthew Stephens, network technician for the National Guard 261st Theater Tactical Signal Brigade. ESBs are modular in nature and primarily support other units that don't have their own communications equipment. "We did the same job, in the same theater, at the same time," Stephens said.

PEO C3T fields the National Guard the same communications equipment as active army units, so all of the equipment can interoperate across the force – whether it's providing communications support to first

responders during a domestic disaster or to a unit in a combat zone.

NETWORK COMMUNICATIONS

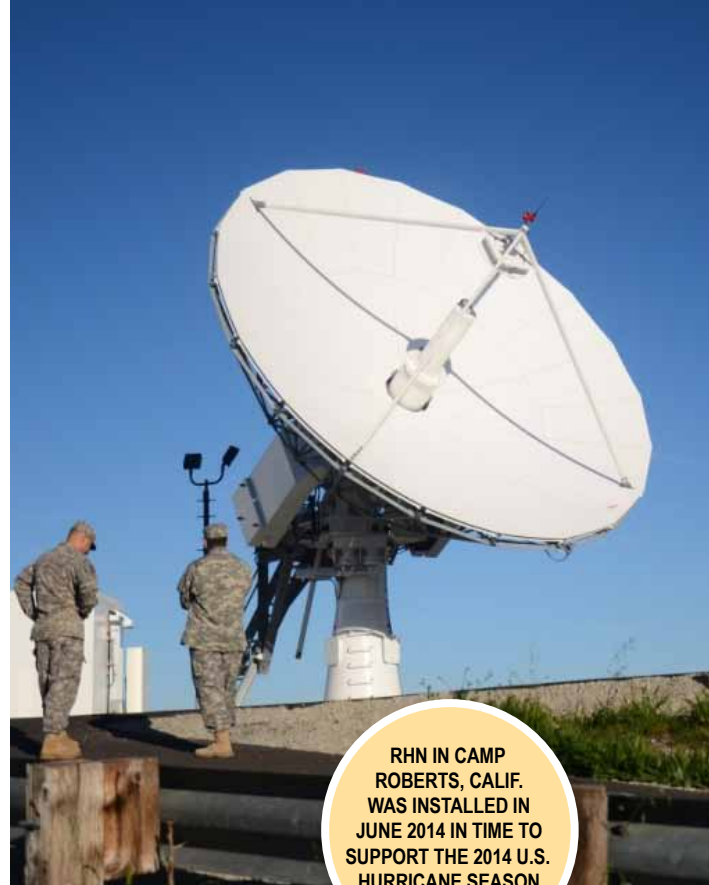
During incidents like 9/11 and Hurricane Katrina, life-saving communications technologies were almost non-existent when they were needed most. Cell phone towers were destroyed and overloaded, and first responders' radios were incompatible. Now, the new rapidly deployable Disaster Incident Response Emergency Communications Terminal (DIRECT), formerly called the Joint Incident Site Communication Capability (JISCC), will overcome these challenges. It consists of a Joint Network Node (JNN) with a Satellite Transportable Terminal (STT) provided by each state's National Guard units and a new Delta Package. The new capability provides enhanced collaboration and communication services at incident sites, linking local responders and emergency managers with state and federal authorities. The Delta Package provides Guardsmen, first responders and other organizations with 4G LTE/Wi-Fi connections

for the command post and surrounding area, interoperable radio communications and phone and Internet services when local commercial infrastructure is down.

The new DIRECT replaces an existing legacy JISCC capability and will be fielded under the Army's Product Manager Warfighter Information Network-Tactical (PdM WIN-T) Increment 1 Tactical Network Transmission program to all 54 states and territories with a National Guard presence. On the current timeline, the Army expects to begin fielding to the first unit in the third quarter of fiscal year (FY) 15, with fielding expected to continue through FY 20.

"Civilian agencies and National Guard units responding to homeland emergencies will have the situational awareness and communications capabilities required to make informed decisions faster and with better results," said Capt. Adrian Smith, the Army's WIN-T Increment 1 DIRECT lead, who is also a member of the Indiana ARNG. "These capabilities will help to save lives and property, and provide timely relief to those who need it."

The DIRECT's transport mechanisms



RHN IN CAMP ROBERTS, CALIF. WAS INSTALLED IN JUNE 2014 IN TIME TO SUPPORT THE 2014 U.S. HURRICANE SEASON

include a WIN-T Increment 1 JNN with a STT, which have already been fielded to National Guard units for more than a decade, saving the cost of fielding additional equipment. National Guard units in every state are fielded with the Army's expeditionary internet, WIN-T Increment 1, which provides Soldiers at the battalion level and above with high-speed, high-capacity voice, data and video communications.

At the heart of DIRECT is the Mission Network Enclave (MNE), which fits into a single man-portable transit case and provides the tactical access to commercial internet and telephone services. Since the National Guard has a dual role supporting both state and federal missions, MNE can also be rapidly reconfigured to provide tactical access for Secure Internet Protocol Router (SIPR), Non-secure Internet Protocol Router (NIPR) or even coalition networks.

Integrated into the MNE, the radio-bridging and voice cross-banding module allows interconnection between telephones, combat net radios, first responders' radios and voice applications. It enables seamless interoperability among disparate radio networks without the National Guard having to supply common radios to all the users, as was done in the past. Guardsmen can now combine radio and phone networks for crossed communications or create different forums where various agencies can talk in independent groups.

To support the DIRECT Delta Pack-

age effort, the Army recently installed a commercial internet and phone package at its Regional Hub Node (RHN) in Camp Roberts, Calif. The service completed the effort in June in time to support the 2014 U.S. hurricane season, which runs from June through December. The other four RHNs are scheduled to be updated with the commercial internet and phone kit within the next year, enabling similar capability should a disaster strike anywhere on the planet.

RADIOS AND MISSION COMMAND

National Guard units are also equipped with the same combat net, tactical satellite, hand-held, and high frequency radios provided to the active component, including Single Channel Ground and Airborne Radio System (SINCGARS) and AN/PRC-117G tactical software-defined combat-net radio radios. In 2010 and 2011, PEO C3T provided more than 3,600 radios to all U.S. hurricane states, including Hawaii, the Virgin Islands, Puerto Rico and Florida. It also set up the infrastructure, and worked with the first responders and the National Guard to ensure optimum operational capability.

The Guard is also fielded with advanced mission command capabilities such as Command Post Of the Future (CPOF), which provides situational awareness information and enables users to see and interact with one another's tools, data and

maps. Using CPOF, the Guard commander can get a quick glimpse of the damage and see the big picture of what his state looks like so he can better use the assets, said Maj. Eli Segres, assistant product manager for the Army's PdM Command Post Computing Environment, who is also a member of the South Carolina ARNG.

When power lines are down during storms or other emergencies, National Guard units also utilize the Blue Force Tracking (BFT) satellite network to keep track of Soldier and platoon locations and to relay situation reports on local conditions. Delaware National Guard used BFT to track Soldiers responding to multiple severe snowstorms last year. When one of their vehicles was in distress, they knew exactly where to provide immediate help.

"During that snowstorm we put a lot of great guys on the street that had just returned from Afghanistan," said Lt. Col. Wiley Blevins, commander of the Delaware National Guard's 198th Signal Battalion, which provides communications support to military and non-military units and agencies for both state and federal missions. "Snow was falling and the Soldiers were calling us and wanted to come in to help. In the course of 30 days, I welcomed them off the plane, and then boom, sent them on the street. Perfect example of support to the away game and the home game and the true duality of the citizen-Soldier."

INTEGRATED RADIO-BRIDGING AND VOICE CROSS-BANDING MODULE, ALLOWING INTERCONNECTION BETWEEN DIFFERENT TELEPHONES, COMBAT NET RADIOS, FIRST RESPONDERS RADIOS AND VOICE APPLICATIONS



NOVEMBER



COL Gregory Fields retires from the Army after more than 38 years of service



Pocket-sized Forward Entry Device Increment 2, delivered as the Mobile Handheld Fires Application, achieves Materiel Development Decision

DECEMBER



Full Materiel Release is signed by the Commanding General, CECOM, for WIN-T Increment 1



Ms. Jennifer Zbozny and Mr. Clifton Basnight are each awarded Bronze Order of Mercury Award



PEO C3T holds Technical Workshop with AFCEA Aberdeen Chapter on future network

JANUARY

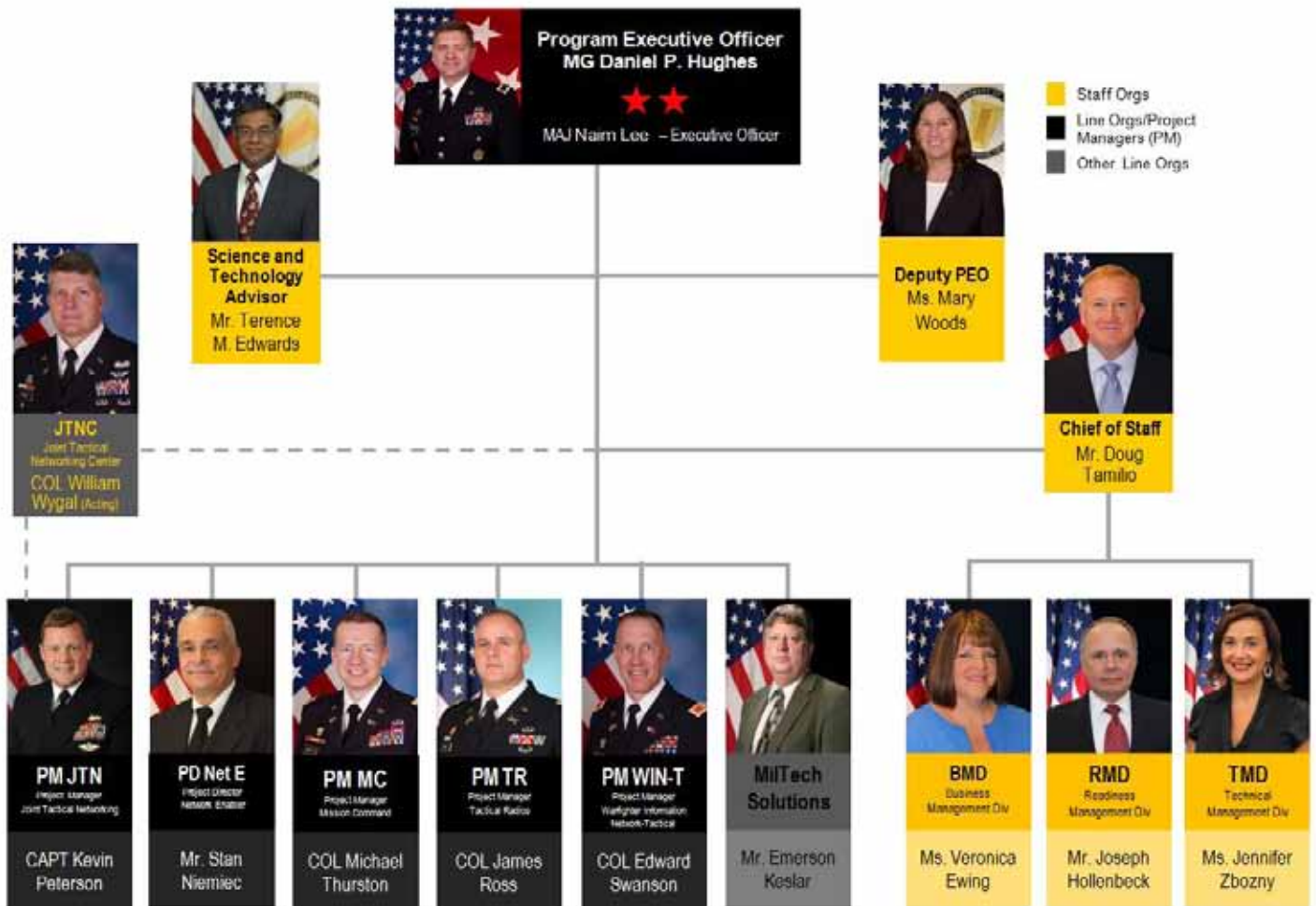


Joint Automated Deep Operations Coordination System reaches the critical Milestone C acquisition phase, becoming an official program of record and moving into production and deployment



JTNC Charter and JTNC ADM Signed by Defense Acquisition Executive (DAE)

PEO C3T ORGANIZATION



FEBRUARY



PEO C3T's Capability Set System of Systems Training Team is named C4ISR Team of the Quarter for the First Quarter FY14



PD Network Enablers is created with the merger of PD COMSEC, PD TNI and PdD CHS



First Virtual conference held by milSuite and Defense Connect Online



PdM AMF, SALT pre-solicitation Industry Day held at APG



PEO C3T provides on-site support to the ARCENT headquarters in Kuwait for the fielding and installation of the Mission Command 13 baseline



LTC Troy Crosby is recognized at PdM NS Retirement of Charter ceremony



NIE and STARNet/Network After Next Industry Day held at APG

KEY PROGRAM METRICS

PEO C3T ACQUISITION PROGRAMS AND EFFORTS: 40

PROGRAMS:	
ACAT I	8
ACAT II	6
ACAT III	9
PRE-ACAT	2
Other Non - PoR	15

PHASES:*	
PRE-ACAT	2
Tech Development	0
EMD	3
Production & Deployment	13

ACAT I Programs: TMC (IAC), WIN-T Inc 1 (IC), WIN-T Inc 2 (ID), WIN-T Inc 3 (ID), HMS (ID), AMF (ID), JTN (ID), MNVR (ID)

UPCOMING FY14 MILESTONE DECISIONS:			
PM	Program	MS	Date
PM MC	JBC-P	FRP	1QFY14
PM MC	JADOCS	MS C	1QFY14
PM MC	MHFA	MDD	2QFY14
PM WIN-T	T2C2	MDD	3QFY14

As of 9 May 2014

MARCH



Then-Vice Chief of Staff of the Army GEN John F. Campbell visits WIN-T Increment 2 test at APG

APRIL



Grand opening of Unified Laboratory for Tactical Radios - Army (ULTRA) facility at APG



PEO C3T leadership visits Tobyhanna Army Depot to promote partnership



Mounted Android Computing Environment demonstrated at the Pentagon



Command Post Computing Environment demonstrated at the Pentagon



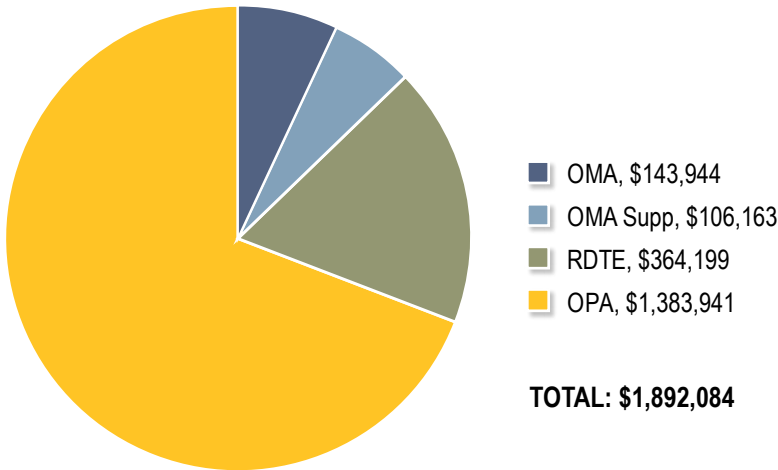
JTNC Town Hall and Mark Compton farewell ceremony held in San Diego



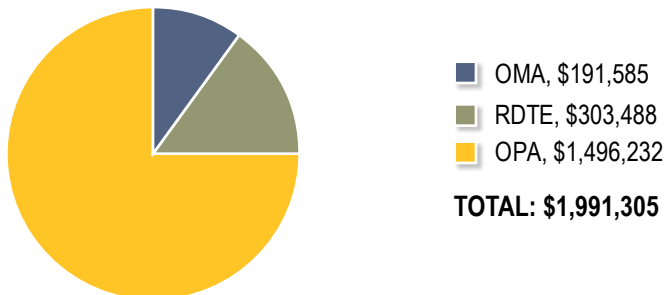
First Soldier Radio Waveform Appliqué contracts awarded

FINANCIAL SUMMARY

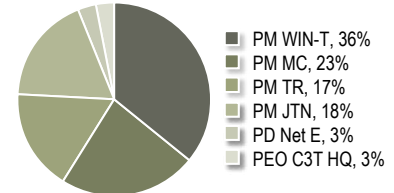
PEO C3T FY14 FUNDING (\$ in K)



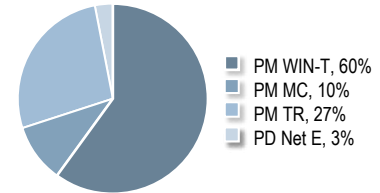
PROJECTED FY15 FUNDING (\$ in K)



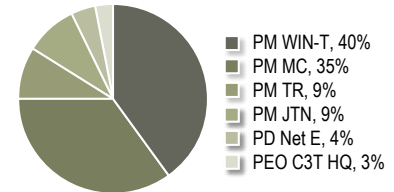
FY14 RDTE FUNDING



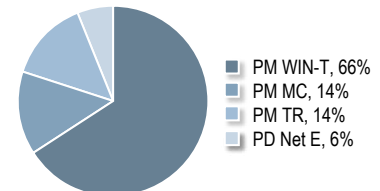
FY14 OPA FUNDING



FY15 RDTE FUNDING



FY15 OPA FUNDING



FY14 OPA reflects PB submit less marks and BBA adjustments as of Aug 15, 2014. Does not include potential rescissions as a result of 15 Marks. FY15 values based on FY15 PB request; do not reflect potential adjustments due to congressional marks.

MAY



MNVR Acquisition
Strategy signed by
DAE



COMSEC
Integration
Integrated Process
Team forum held
at APG



Common
Hardware Systems
Technology Expo
held at APG



MAJ Michael
Williams, assistant
PdM for WIN-T
Increment 1,
completed the
Boston Marathon
Shadow Run
in Bagram,
Afghanistan with
an exceptional
time of 3 hours, 51
minutes



Maj. Gen. (Ret.)
Nickolas G. Justice
Day takes place in
PEO C3T at APG

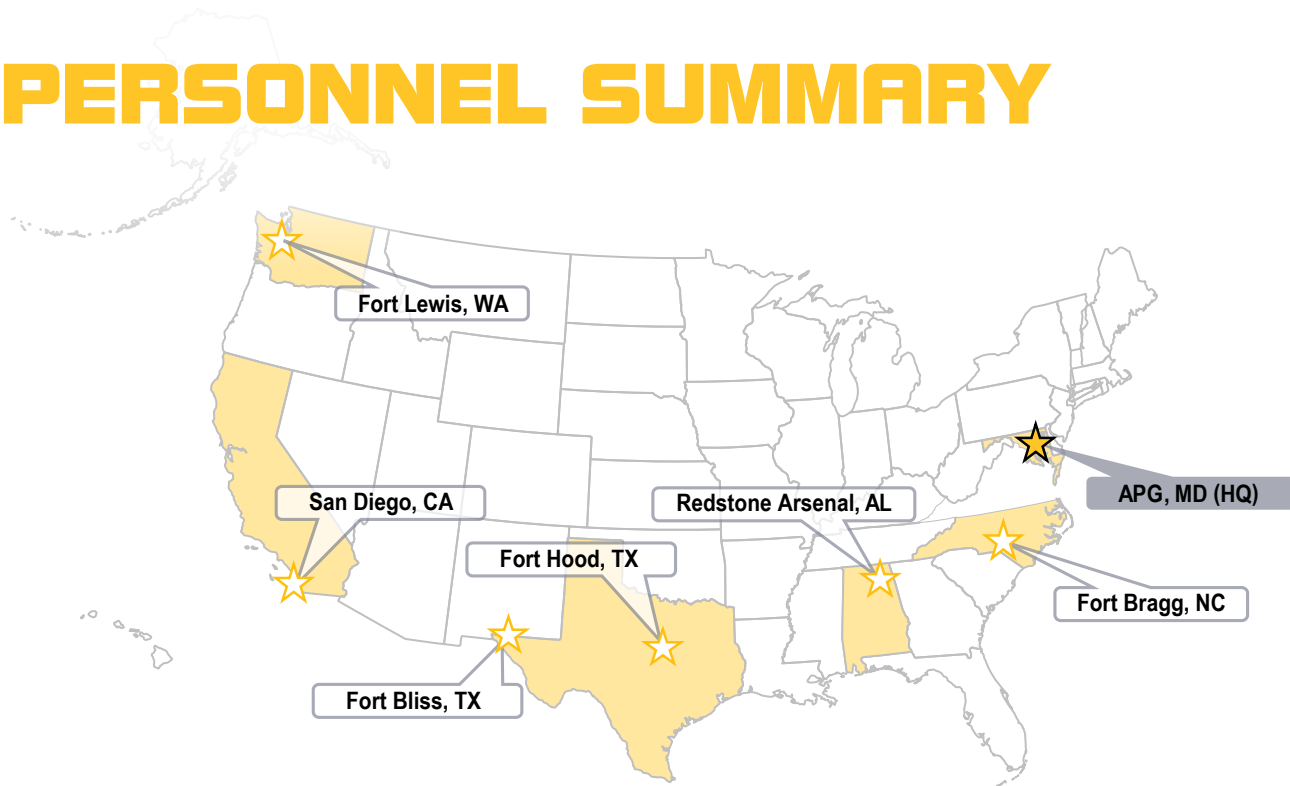


HMS Acquisition
Strategy signed by
DAE

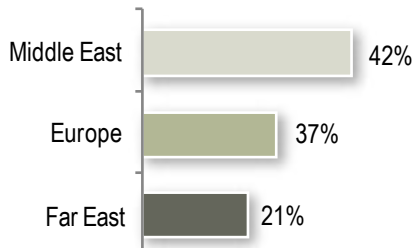


PEO Interchange
(PEO C3T/GCS/
IEW&S) held at
APG

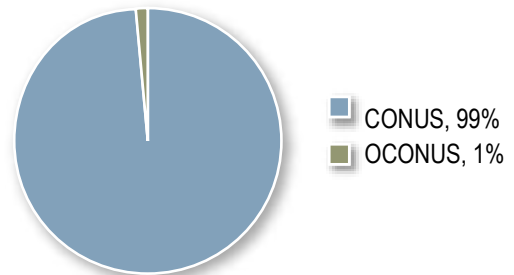
PERSONNEL SUMMARY



WORLDWIDE PERSONNEL LOCATIONS (OCONUS):



PERCENTAGE



MAY



LTC Larry Glidewell passes the Fire Support Command and Control charter to Julia Ruhnke



Rifleman Radio Industry Day held at APG



PM Mission Command combines with PM Joint Battle Command-Platform



NSA certification awarded to MNVR



Sustainment System Mission Command transitions into Tactical Mission Command



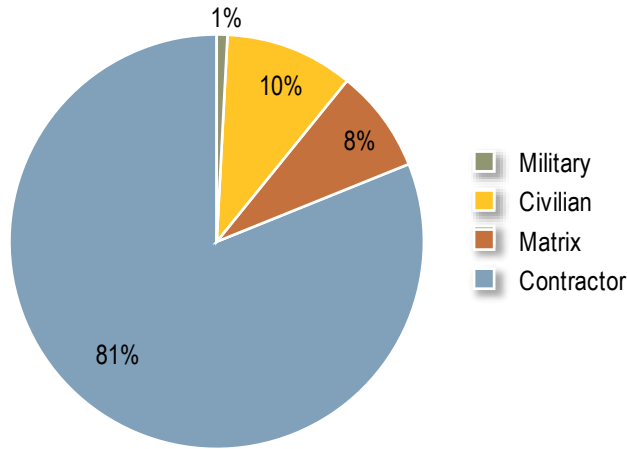
Under Secretary of the Army HON Brad Carson visits laboratories at APG



LTC Thomas F. Bentzel passes the Tactical Mission Command Charter to LTC Jack S. Taylor

JUNE

PERSONNEL BREAKDOWN



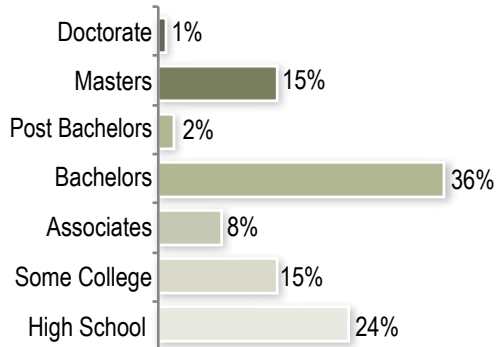
AVERAGE AGE OF WORKFORCE*



KEY SKILL SETS:

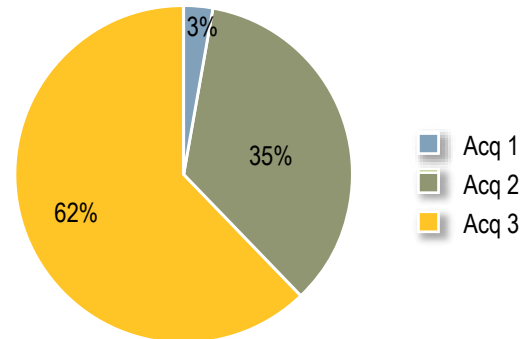
- Program Management
- Engineering
- Information Technology
- Security
- Logistics
- Contracting / Procurement
- Accounting and Budget
- Administration and Clerical
- Computer Science

EDUCATION BREAKDOWN*



*Civilian Personnel only

2014 CERTIFICATION OF ACQUISITION PERSONNEL*



JULY



PEO C3T Portfolio Product Support Managers appointed

AUGUST



Memorial Service held at APG in honor of MG Harold J. "Harry" Greene



Quickly responding to Soldier feedback from NIE 14.2, PM Tactical Radios and Natick Labs develop a prototype Multi-Day Rucksack for the Manpack Radio



COL Russ Wygal passes the charter for PM Tactical Radios to James P. Ross

SEPTEMBER



MG Hughes promoted to two-star general



PEO C3T-PEO Soldier Home on Home Summit takes place at Fort Belvoir



LTG (Ret.) Bill Campbell speaks at inaugural event in Excellence in Acquisition Lecture Series



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1 OCT 2014